LABOR EXCHANGE AND PEASANT AGRICULTURE: A CASE OF SINHALESE AGRARIAN SETTLEMENTS IN SRI LANKA

AKIRA ADACHI

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ABSTRACT

This study analyzes reciprocal labor exchange in Sinhalese agrarian settlements in Sri Lanka. Reciprocal labor exchange is here defined as the exchange of labor in which labor assistance has to be more or less precisely reciprocated by labor assistance of the same kind and quantity in a short time duration, for instance, one day assistance in plowing for one day assistance in plowing during a cultivation season.

Labor exchange in peasant agriculture is usually organized by individual households to achieve an optimal mobilization of labor for certain agricultural operations. This mobilization results both in minimizing the costs (drudgery and wages) of peasant production and in maximizing the exploitation of household labor. Except in a few cases, any symbolic expression of particular socio-cultural messages between host and helper is of secondary importance. Labor exchange is thus a kind of economic exchange in a neoclassical sense. However, since the rate of exchange is institutionally fixed at one for the precise reciprocity, it is of course not governed by market mechanisms. In other words, although exchange labor is a scarce resource, particularly during the times of peak demand for labor in peasant agricultural production, the difference between demand and supply of exchange labor is not mediated with varying rates of exchange. As a consequence, the following two questions must be examined to understand labor exchange behavior. The first is how the difference be-

tween demand and supply of exchange labor is mediated at individual household level. The second is how flow of exchange labor is determined in a locality. However, few studies in anthropology and mainstream economics have examined these questions, because their models and concepts have not been developed to analyze reciprocal economic behavior, such as labor exchange discussed here. It is in this context that labor exchange in Sinhalese agrarian settlements is examined in this thesis.

I attempt to analyze labor exchange behavior as a maximization (or economization) process in peasant agricultural production within a wider ecological and socioeconomic setting of Sri Lanka. The empirical focus is on the decision making process regarding labor exchange and complementary labor mobilization, in order to understand the causes and consequences of the choices that the peasant households make to meet the demand for labor mobilization. For this purpose, the natural decision making approach is employed here, together with ethnographic observation. The bulk of empirical analyses on various phases of labor exchange shows that at the individual household level the difference between demand and supply of exchange labor is largely mediated through exploration for exchange labor, in which each household forms a relatively fixed network of labor exchange and (often competitively) organizes it within the network. It further shows that the relative degree of tolerance of imbalance in labor exchange affects both the mediation between demand and supply of exchange labor at the individual household level and the flow of exchange labor in the locality. Based on the above analyses and findings, this thesis argues that in contrast with

the debate over rational vs. moral peasants, peasant behavior is neither rational nor moral but "realistically ethical" in empirical level. This next argues that labor exchange, rooted in history and custom as a pre-capitalist mode of labor organization, cannot be regarded simply as a cultural lag or hangover from a pre-capitalist economy; labor exchange is rather an adaptive response made by peasant households to their current ecological, social and economic conditions. This further suggests that the model presented here, al though an empirical model of labor exchange in Sinhalese peasant agriculture, will guide research endeavor on various kinds of reciprocal economic exchange yet to be examined.

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NOTE TO THE READER

The name of the people and places recorded in this thesis are the actual names recorded by me in the field. The mention of a name is usually accompanied by a code number, for instance, A.G. Siriwardane (M-4), H.M. Sumanapala (A-12), B.W. Heenbanda (N-12) and so on. Every code number is divided in the middle by a hyphen. The letter to the left of the hyphen indicates where the individual lives. The letter "M" indicates Madumana, "A" Aliyawala, and "N" Nuwara Yaya, respectively. The number to the right of the hyphen indicates the household number set by me in each settlement. With certain exceptions, the genealogical position of the householders who have been given code numbers is shown in Appendix I. Further, the relationship in labor transaction between the two households who have been given code numbers is shown in Appendix II.

CHAPTER I

INTRODUCTION

This is a study of reciprocal labor exchange in three Sinhalese agrarian settlements[1], located in Matale District, Sri Lanka. Reciprocal labor exchange (or simply labor exchange) in peasant agriculture is usually motivated by the individual peasant's need to secure extra household labor in certain agricultural operations. Any symbolic expression of particular social message to the host cultivator is of secondary importance. However, even though labor exchange is thus a kind of economic exchange, it is not governed by market mechanism in any sense. This is because the exchange rate of labor exchange is institutionally fixed at one, according to the cultural rule on the precise reciprocity, even during the times of peak demand for labor in which exchange labor is a scarce resource. Here, there are two key questions to be answered, although related to each other. They are: how the difference between "demand" and "supply" of exchange labor at the individual level is mediated or interacted without the function of market mechanism; and how the flow of exchange labor in the locality is determined. However, few studies on such aspects of labor exchange behavior have appeared in anthropology and main-

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1. The term "settlement" is used in this thesis to connote not only "new colony settlement" but also "old settled or traditional village". As I shall discuss in Chapter II, Sinhalese village or colony settlement is a simple aggregate of the households in the locality rather than an integrated body of the households in the locality. The term "settlement" is then chosen here rather than the term "community".

stream economics. This is because their models and concepts have not been developed to analyze reciprocal economic exchange such as labor exchange in peasant agricultural production. Labor exchange hence provides a significant opportunity to empirically analyze one of reciprocal economic exchange and develop the models and concepts of such exchange behavior. It is in this context that labor exchange in the three Sinhalese agrarian settlements is studied in this thesis.

This thesis attempts to analyze labor exchange behavior as a maximization (or economization) process in peasant agricultural production. The empirical focus is on the decision making process regarding labor exchange and complementary labor mobilization in order to understand the causes and consequences of the choices that the peasant cultivators make to meet the demand for labor mobilization within Sinhalese socio-cultural setting. For this purpose, the natural decision making approach is employed here together with ethnographic interpretation and observation. Through the bulk of the empirical analyses on various phases of labor exchange in the three Sinhalese settlements, I shall show that at the individual level the difference between "demand" and "supply" of exchange labor is largely mediated through exploration (often strategically and competitively) for exchange labor, that is, through tactically organizing exchange labor within a relatively fixed household network of labor exchange. I shall further show that the relative degree of tolerance of imbalance in labor exchange largely affects both the mediation between demand and supply of exchange labor at the individual

level and the flow of exchange labor in the locality.

Examining these empirical findings, I shall finally argue that labor exchange, rooted in history and custom as a pre-capitalist mode of labor organization, cannot be regarded simply as a cultural lag or hangover from a pre-capitalist economy; labor exchange is rather an adaptive response made by peasant households to their current ecological, economic and social conditions. I shall further discuss the above two key questions of labor exchange so as to clarify the distinct characteristics of reciprocal labor exchange in particular and then explore some implication of this study in the theory of "balanced reciprocity" in general.

In this Chapter, I shall first discuss the aim and the empirical focus of this thesis in detail, and go on to describe the analytical approach employed here. I shall further state the conditions of the field work and the data, and finally provide the organization of this thesis.

The Aim and Empirical Focus of this Thesis

In this section, I shall examine some distinct characteristics of reciprocal labor exchange in peasant agricultural production and argue that labor exchange is a kind of economic exchange but it is not governed by market mechanism. This discussion will clarify the theoretical significance of labor exchange behavior in economic anthropology and help to state the aim and the empirical focus of this thesis.

Reciprocal exchange of labor has commonly been seen in many peasant societies characterized by small-scale agricultural production organized in household units and dependent largely on biological source of energy (Moore 1975). Reciprocal labor exchange is here defined as the exchange of labor in which labor assistance has to be more or less precisely reciprocated by labor assistance of the same kind and quantity in a short time duration, for instance, one day assistance in plowing for one day assistance in plowing during a cultivation season. Labor exchange is hence a kind of exchanges based on "balanced reciprocity" (Sahlins 1974 : 223-224). In contemporary peasant societies, exchange labor is being replaced by wage labor under the impact of certain widespread changes in the socioeconomic environment (Erasmus 1956, Moore 1975; Gunasinghe 1976). But, many peasants still prefer to recruit exchange labor rather than wage labor. This is because, through labor exchange, they can meet demand for labor mobilization without any cash cost of wage labor and at the same time enjoy the maximum use of their household labor, which seldom has any other opportunities for subsistence or earning cash than the agriculture. In addition to exchange labor, there are various other forms of labor co-operation, often based on kinship relations, in most peasant societies. But, although these forms of labor co-operation are recruited especially at times of crisis, they do not usually contribute much to satisfying the daily labor needs due to their less capacities for labor mobilization. Labor exchange is consequently still the important form of labor mobilization in peasant agricultural production.

One of the distinct characteristics of labor exchange in peasant societies is that it is not a social exchange but an economic exchange of labor assistance. Here, in order to clarify this point, I shall introduce a simple typology of exchange behavior. In general, every exchange behavior can be classified into two categories: social and economic exchange in terms of the nature of items exchanged (cf. Ekeh 1974 : 200-201), although some exchange behavior may be placed in both categories[1]. Social exchange is defined as one type of exchange behavior which is motivated by the exchange actor's desire to express socio-cultural messages about particular social relationship such as kinship and friendship, whether such behavior is enforced by morality or social institutions. Items exchanged in social exchange have symbolic values rather than material or economic ones and such items are sought for, not because of what they are worth in themselves, but rather what they symbolically represent between exchange partners. In contrast, economic exchange is defined as the other type of exchange behavior which is motivated by the exchange actor's desire to acquire items exchanged themselves. In this sense, items exchanged in economic exchange are sought for, because of their own material or economic worth but not what they symbolically represent between exchange partners. With the above typology of exchange behavior, labor exchange can be classified into a kind of economic exchange rather than social exchange. This is because labor assistance is exchanged by individual household to

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1.Exchange behavior placed in both categories is discussed theoretically and ethnographically by Barth (1966), Bourdieu (1977), Holy and Stuchlik (1983) and so on.

satisfy demand for labor mobilization to agricultural operations but not primarily to express any social messages carried with labor assistance. Although labor exchange practice often results in the symbolic communication of the idea about egalitarian social relationship between participants, such symbolic communication is not the primary motivation of labor exchange but merely a result of the economic motivation to satisfy individual demand for labor mobilization. In order to clarify this characteristic of labor exchange, it is necessary to examine actual relationship between social structure (especially kinship relation) and labor exchange in various ethnographic writings, and also the economic significance of labor exchange in the peasant agricultural production in general.

Demand for labor mobilization in peasant agricultural production often exceeds over the capacity of individual household, so labor exchange needs to be organized in diverse social forms at higher levels than the household. However, especially in the peasant societies lacking united corporate kinship groups, the organizational principle of labor exchange is, except a few exceptions, not derived from kinship norms but from individual pragmatism for labor mobilization. Such a tendency of labor exchange has been reported by many anthropologists in the context of Sinhalese peasant society as well as elsewhere. In a monograph on the land tenure and the kinship in a Sinhalese dry zone village, Leach (1961) shows how the work organization is not derived from the morality of kinship itself but from the various practical reasons for agricultural operation. Although he found clearly structured patterns of kinship relations in the cooperative work teams at the threshing floor, he empirically demon-

strated that such statistically structured patterns were derived from land holding patterns (which were closely related to the inheritance patterns) through individual practical choices in the agricultural operations. It is thus argued by Leach (1961) that the beautifully structured pattern of kinship relations at the threshing floor is an epiphenomenon of the land use pattern in the village. The following statement of Leach summarizes the character of the work organization in the village.

> Kinship alone does not determine who shall join in a common work team...all I would emphasize the element of choice that is present. There is no clear-cut jural obligation that a particular individual should contribute his labor to one group rather than another. On the contrary, every individual is subject to a variety of such [debt] obligations and he chooses that course which appears most advantageous or convenient to himself (Leach 1961 : 280-281).

As Leach made clear the principle of the work organization at agriculture in the Dry Zone village, Robinson (1968, 1975) also demonstrated the relationship between kinship and labor exchange in a Sinhalese village of the Kandyan highlands. Showing the statistical tendency of the correlation between the frequency of labor exchange and the genealogical distance, she stressed that most of exchange labor were given to the villagers not by their close kinsmen but by their distant or non-kinsmen in the locality. These two studies thus showed that the organization of labor exchange in Sinhalese peasant society is derived from the villager's practical choices in agricultural operations but not from the logic of kinship relations itself, even if structured patterns are sometimes seen in the work place. A similar tendency has been reported by many anthropologists who studied other peasant societies such as the Lamet (Izikowitz 1951), the Land Dayak (Geddes 1954), the Iban (Freeman 1955), and the Lower

Burme (Pfanner 1969) of the South East Asia, the Ndondeuli of East Africa (Gulliver 1971) and the Merina of Madagascar (Bloch 1973). From these ethnographic writings, it is thus obvious that labor exchange in the peasant agricultural production is not motivated by kinship norms to express particular social messages but by practical necessity for labor mobilization.

However, it is still not very clear how labor exchange is motivated by practical necessity for labor mobilization and also how labor exchange can be said to be an economic (or economizing) exchange. Because it is a common sense that the practice of labor exchange does not increase the size of the labor force or the amount of the work done as long as the precise reciprocity is maintained. In order to clarify these points, I shall here examine the economic significance of labor exchange for peasant cultivators from a different angle. With peasant agricultural production, there are several basic components: land (and water), certain technical rules, tools and labor. Organizing labor force is hence one of the most important phases in production process. All the cultivators notice that various conditions (technical and psychological) at each stage of cultivation process often demand a proper mobilization of labor which may bring various advantages. Such advantages derived from a proper mobilization of exchange labor are not directly material but practical and psychological ones, since labor exchange results in no increase in the size of the labor force or in the amount of work done. Although they are not directly material ones, however, practical and psychological advantages are considerably important for peasant

cultivators. This is because these advantages derived from labor exchange reduce cultivator's "drudgery" which is the main cost of peasant agriculture. In fact, to reduce the drudgery is important for peasant cultivators as Donham (1981: 519) clearly pointed out in comparison to the cost of capitalist production that

> Costs to a capitalist are, for example, monies spent on wages, raw materials and machines; for a peasant householder, in contrast, costs are primarily defined in terms of the drudgery by his or her own labor.

Thus, labor exchange in peasant agriculture is motivated by practical or psychological needs in work process to obtain various advantages. In other words, labor exchange can be said as an economic behavior to economize the cost of peasant agricultural production (i.e. the drudgery of the cultivators)[1].

I have so far examined one distinct characteristic of labor exchange as a kind of economic exchange in peasant agriculture. In addition to such a characteristic, there is another distinct characteristic, which distinguishes labor exchange from various kinds of market exchange as the dominant form of economic exchange now. This characteristic of labor exchange is that although labor exchange is a kind of economic exchange, it is governed by the cultural rule of the precise reciprocity but not by market mechanism.

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1. The reduction of the drudgery through labor exchange may consequently result in the increase of the intensity of the production to some extent. Such a consequence of labor exchange in peasant agriculture has not been given attention in economic anthropology and agricultural economics, although many peasant cultivators whom I studied for this thesis claimed it. Although it requires a long term observation and much statistical data for us to prove this consequences of labor exchange, this issue is discussed again through examining some concrete cases in Chapter VII.

In a market situation, for instance, individual choice about whether or not and how much to recruit wage labor largely depends on the price of labor (i.e. the wage) determined by the equilibrium between "demand" and "supply" of wage labor. In reciprocal labor exchange, in contrast, the exchange rate is fixed at one in such a manner that labor assistance must be reciprocated by labor assistance in the same kind and quantity in a short time period. Even during the times of peak demand for labor, in which exchange labor is a scarce resource, the rate of exchange does not vary according to the balance between "demand" and "supply" of exchange labor. Consequently, the individual choice about whether or not and how much to exchange labor on the reciprocal basis does not depend on the market mechanism. Thus, although both hiring wage labor for the wage and exchanging labor on the reciprocal basis are two kinds of economic exchange, the above characteristic of labor exchange clearly distinguishes labor exchange from hiring wage labor and the other types of the market exchange.

From the above discussion on the two distinct characteristics, it is thus obvious that labor exchange in peasant agricultural production is an economic exchange and has little to do with kinship relations, but distinguished from the market exchange. In other words, while labor exchange is similar to the various kinds of market exchange in terms of the dominance of economic motivation, the former is clearly different from the latter due to the absence of the varying rate of exchange.

However, although a great number of ethnographic accounts on

labor exchange in various areas of the world are available (see Moore 1975), few serious studies have appeared. It seems to me that labor exchange behavior has been neglected in anthropology and mainstream economics because their models and concepts have not been developed to analyze reciprocal economic behavior such as labor exchange, and various other forms of exchange of productive resources (i.e. tools, machines and services) in many rural societies (Bennett 1966). On the one hand, although social anthropologists have been concerned with reciprocity behavior, their main concern is with the institutional and communicative aspects of social exchange such as gift exchange (e.g. Malinowski 1922; Mauss 1954; Sahlins 1974; Schwimmer 1979). Consequently, they have seldom analyzed reciprocal economic exchange which cannot be understood only in terms of social factors. In the context of labor exchange, most ethnographic studies have simply described the normative and cultural aspects of labor exchange and, as I discussed before, focussed only upon the relationship between kinship relations and actual organization of labor exchange. Since these studies are exclusively social anthropological, they treat with the actual organization of labor exchange as an index to examine whether particular kinship groupings empirically exist or not. After they found no close relationship between the two, they then stopped further analysis and left unclarified the organizational principles and patterns of labor exchange, and also its economic and allocational aspects. On the other hand, although economic anthropologists and mainstream economists have been concerned with economic and allocational aspects of human behavior, their subject matters are exclusively limited to market exchange,

whether tribal-peasant market (e.g. Cook 1970; Humphrey 1984) or Western capitalist market, governed by the equilibrium between "supply" and "demand". As a result, they ignore reciprocal economic exchange, "or if they refer to reciprocities, do so as 'given' or as a descriptive qualification of vigorous quantitative models" (Bennett 1966 : 277). Thus, due to the lack of the models and concepts to analyze reciprocal economic behavior, labor exchange has not systematically been studied[1].

It must be emphasized here that "the lack of the models and concepts to analyze reciprocal economic exchange" does not mean the lack of the basic theory to analyze economic behavior such as reciprocal economic exchange. In recent years, there has been the development of economic anthropological theory and the methodology. In particular, since the formal-substantive debate (over whether

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1.Only a few studies have so far analyzed some economic and allocational aspects of labor exchange but they are neither systematic nor concerned with labor exchange itself. Moore (1975) reviewed various ethnographic writings on labor co-operation including labor exchange and made some generalizations regarding typology, the economic advantages and the changing process from labor exchange to wage labor in the peasant societies. But, he discussed little about the economic and allocational aspects of labor exchange in relation to ecological, technical, social and economic factors. Guillet (1980) presented a significant qualitative description on the allocation decisions of labor including exchange labor into the peasant agricultural operations in the highland Andes. He drew up a chart of such allocation decisions of labor, which seems to be widely applicable to Sinhalese peasants as well as those found elsewhere. Further, he placed "un-exploitative" labor exchange among the peasants in a wider context of the political economy, and ironically concluded that the system of reciprocal labor exchange tends to support the various exploitative processes of the peasants in the periphery by the government and capitalists of the center. However, as he himself stated, he did not give much attention to the quantitative aspects of labor allocation due to the difficulty of analysis, so that several significant aspects of labor exchange, which are discussed in this thesis, were neglected.

formal economic theory based on western economy can be applied to non-Western economy) has been revised, most contemporary economic anthropologists have had an unifying theory to analyze economic behavior to non-Western economy and have studied human behavior, whether in market or non-market situation, in relation to the choices in allocating scarce resources to the alternative ends within a given cultural and institutional or political economic setting (e.g. Cansian 1972; Cook 1973; Keesing 1976; Barlett 1980; Donham 1981). It is hence theoretically possible to develop the models and concepts to analyze reciprocal economic exchange. The only issue here is not in theory but in practice: how to analyze and provide measurement for reciprocal economic exchange. This is always the problem in applying neoclassical economic theory to non-Western economy as Georsescu-Roegen (1966 : 109-110) clearly pointed out that

> The statement that the fundamental principles of economics are universally valid . . . may be true only as their form is concerned. Their content, however, is determined by the institutional setting. And without this institutional content, the principles are nothing but "empty boxes" from which we can obtain only empty generalities.

However, in order to fulfill "empty boxes" in a given institutional setting, there have been the developments of the methodology, including decision making analyses, which facilitates the analysis of allocational problems. (See for details in the next section). With this contemporary orientation in theory and methodology, it may then be possible to analyze reciprocal economic exchange in concrete institutional settings and develop the models and concepts of it.

In this context reciprocal labor exchange is significant, since it provides an opportunity to analyze and examine one of reciprocal

economic exchange which has been a "black hole" in anthropology and mainstream economics. Although labor exchange is merely a kind of reciprocal economic exchange and is different from the other kinds of reciprocal economic exchange such as the ones of tools, machines and services in rural societies, the analysis of labor exchange may provide some general model and concepts on reciprocal economic exchange. This is why this thesis attempts to analyze labor exchange behavior in the Sinhalese agrarian settlements.

I shall now state the empirical focus of this thesis. As discussed before, labor exchange is a kind of reciprocal economic exchange in which peasant cultivator tries to economize the cost of agricultural production. Since exchange labor is not infinite in the locality, it becomes a scarce resource during the times of peak demand for labor. But, here, market mechanism does not work out in determining the flow of exchange labor in the locality due to the enforcement of the cultural rule on the precise reciprocity in a short term. Then a question arises as to how the flow of exchange labor in the locality is determined. This is one of key questions to understand reciprocal labor exchange in peasant agriculture, since it can be explained neither by preestablished social factors (kinship relations and the cultural rule of reciprocity) nor by market balance between "demand" and "supply". Then, in order to examine the above question, it is necessary to understand how the difference between "demand" and "supply" of exchange labor at the individual level is mediated or interacted without varying rate of exchange. This is the other key question here.

However, as I discussed before, the concepts and models of reciprocal economic exchange have not been developed. We then have to start from empirically looking at individual economic behavior, especially individual decision making process regarding the strategic and optimum arrangements of labor exchange in quality and quantity within a given institutional settings[1].

Furthermore, although most peasant cultivators prefer to recruit exchange labor rather than the other forms of labor co-operation and also hired labor, these complementary forms of labor mobilization are sometimes recruited. Hence they also must be examined in relation to exchange labor here.

The empirical focus of this thesis can now be stated as decision making process regarding labor exchange and complementary labor mobilization. Furthermore, this focus can be divided into several sub-focusses. They are: how peasant household chooses whether or not to exchange labor on the reciprocal basis in the presence of the other forms of labor mobilization; if the household chooses labor exchange as a primary form of labor mobilization, how it decides how many units of exchange labor to be recruited; what is actually maximized (or economized) through practices of labor exchange; what are the socioeconomic consequences of the choices that peasant households make in the locality; and what kinds of ecological, technical and socioeconomic factors affect the above decision

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1.This focus on decision making process is based on Befu (1977)'s analytical framework of exchange behavior.

making processes. Although these questions are conceptually divided, they are related to each other in a complex consequence of the decision making process regarding labor exchange and complementary labor mobilization. In order to analyze the above focuses empirically, it is therefore necessary to employ the systematic analytical approach discussed in the next section.

Natural Decision Making Approach

The natural decision making approach is examined here. I shall first state why the natural decision making approach is employed in this analysis of decision making process of labor exchange and complementary labor mobilization, and go on to describe the basic framework of this approach in brief. I shall further add an account of the suitability of this approach against a critique raised by Chibnik (1980).

In anthropology, the concern with "decision making" is often based on the formal economic assumption of the principle of rationality in choice of action, although it may appear only loosely and implicitly. The formal economic assumption or principle of rationality here implies a hypothetical proposition as evident from Cohen (1967)'s argument on the matter. He says that

> Human beings will, given enough information, seek to maximize their gains by obtaining the highest possible return for any given resource or else will seek to economize (minimize) using the smallest quantity of a resource to obtain a given return. (Cohen 1967: 104).

Having such a hypothesis, many anthropologists have carried out empirical studies in determining the extent to which people in market

economy and non-market economy are "rational" in their decision making (e.g. Ortiz 1973; Schneider 1974).

In spite of the frequent use of this hypothesis, however, it has appeared that "the very generality of this abstract form of maximization theory renders it trivial unless operationalized" (Johnson 1978 : 142). Even a long time before, Burling (1962) had already made such a point clear when he said

> To say that an individual strives to maximize his satisfaction is to state little more than a truism . . . If we state that people act so as to maximize something broad enough "satisfaction" to subsume all our more specific goals, we say very little. If we state that people act so as to maximize one particular goal . . . power, money, income, or whatever we choose . . . then usually we are incorrect. (Burling 1962 : 817).

Thus, there are apparent difficulties associated with applying this hypothesis to actual situations, where decision making is involved with too many goals to be operationalized.

However, as mentioned before, there have been the methodological developments of economic anthropology. The natural decision making approach is one of such methodologies through which we can obtain a systematic and realistic view of exchange or economic choice behavior and whereby operationalize the formal economic assumption in a more realistic manner. It has been developed by several anthropologists (e.g. Quinn 1978; Gladwin 1980; Gladwin and Murtaugh 1980). This approach inquires, through interviewing, how the rules people use in making decisions are determined. It maintains the significant view that people employ simplifying procedures or heuristics to make their decision making process easier and simpler. It differs from the formal economic assumption that decision makers can

rank and order all the available alternatives or preference or indifference in one criterion such as specific utility or value. Instead, it posits a psychologically more realistic two stage model of the choice processes that may be represented by a decision tree, a decision table or a set of decision rules.

Gladwin (1980) provides a systematic account of natural decision making approach. According to her, it assumes that an alternative has a set of characteristics or aspects: an aspect is an attribute or dimension or feature of an alternative, and all aspects are discrete. In this approach, the decision maker is assumed to go from Stage I to Stage 2 so as to reach the final choice.

Stage I is the choice process of elimination by aspects. Decision makers confronted with a large number of alternatives narrow the set to a feasible sub-set that satisfies certain minimal conditions. This process is normally rapid or unconscious or pre-attentive one (Tversky 1972; Gladwin and Murtaugh 1980).

Once the alternative are narrowed down to a feasible sub-set, the "hard-core" decision making procedure occurs in Stage 2. People typically go through Stage I quickly and conceive Stage 2 as the "real decision process". In Stage 2, decision makers mentally list aspects that are included in at least one alternative. They may further simplify the decision process by eliminating some aspects on which the alternatives have equivalent values. After eliminating irrelevant aspects, the decision makers pick one of the aspects on which alternatives are ordered. This aspect has the greatest utility or subjective worth for the decision maker in a given context.

However, the alternatives ordered by the aspect may not always be realistic in making decision because of constraints of environment, social system or context. The decision makers then consider the constraints and passes the ordered alternative under them. If the alternative first ordered passes the constraints, it will be chosen for the final choice. If not, the alternative second ordered is passed under the constraints. If it is passed, it will be chosen. Likewise, the decision maker examines the ordered alternatives under the constraints till he reaches the alternative highest ordered which passes under the constraints. But, if no ordered alternatives pass under the constraints, another significant aspect is selected and a new decision making process is undertaken in the same manner.

Stage 2 is thus essentially an algebraic version of maximization subject to constraints, a selection principle described in any micro-economics text. Here, it should be noted that the selection of one aspect in a given context is done by the decision maker but not by the researcher in the natural decision making approach. On the contrary, one goal or aspect such as power, money and income is arbitrarily selected by the researcher in the simple formal economic approach mentioned before. Through detecting the decision maker's simplifying procedure, the natural decision making approach therefore may provide a more realistic conception of the actual decision making process than the simple reductionistic formal economic assumption, and makes it possible to operationalize the formal economic assumption in actual situations.

The natural decision making approach thus provides the realis-

tic analysis of the actor's choice behavior. It is notable here that although the empirical decision model made by this approach is largely based on the actor's idea about his own decision making process, it is in essence based on the researcher's interpretation of the actor's idea about his decision making process. In the actual situation of the decision making analysis, the researcher not only listens to the decision maker's idea about his choice but also interprets in the researcher's terms what is meant by the decision maker. In order to do so, the researcher has to know well about ecological, technical and socio-cultural setting in which the decision maker makes a choice, and also has to observe the decision maker's actual practice after he has made a statement about his choice. Hence, though Gladwin (1980) did not mention to, the natural decision making approach is an anthropological endeavor to interpret the decision maker's choice behavior through interviews and observations, and build the researcher's model of the decision maker's choice behavior. Although this is a limitation in methodological rigorousness, it is also an advantage to avoid "a reductionistic adherence to formalism and the associated tendency to depreciate alternative approach" (Johnson 1980 : 40).

In addition, there seems to be another limitation in its applicability to some types of decision making process, as Chibnik (1980 : 30) pointed out that

> The natural decision approach does not seem particularly useful when choice makers have difficulty in describing the factors influencing their behavior. As Pelto and Pelto (1975 : 11) have noted, day to day economic activity is one domain of decision making in which jural rules are often few and far between and people act in terms of the varying efficacies of complex interrelated social,

> economic, physical and psychological constraints. In such situations, individuals may have incomplete knowledge of the nature and effects of the relevant constraints. Since the decision makers act from particular times and places, they may not know very well what they would do in different circumstances.

This Chibnik's (1978) critique indeed seems to be relevant to the application of the natural decision making approach to such a decision behavior that the decision maker does not know what they would do in different contexts. But, it should be emphasized here that the cultivators in the agrarian settings know very well what they would do in different circumstances in recruiting exchange labor and other complementary labor forms. Most cultivators, in fact, have experienced various kinds of paddy and chena[1] cultivation process in terms of area, technique and labor mobilization. This is because they have worked in different fields through the practice of labor exchange, the other forms of labor co-operation and sometimes working for wage. These experiences make them know what they would do in a wide range of contexts. As long as labor exchange and complementary labor mobilization are concerned, Chibnik's (1980) critique is hence not relevant and the natural decision making approach is suitable to be employed here.

The Condition of Field Work and Data

Field work began with a preliminary survey carried out in January 1981, in order to select a suitable population for study. As

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1."Chena" implies shifting or swidden cultivation of Sri Lanka. It is derived from a Sinhalese word, hen. But it was Anglicized and is now used in English writings. For the details, see Chapter V and also Adachi (1982, 1984, 1987).

I then thought that labor exchange would prevail only in purana (old settlement or "traditional") villages, I chose, for this survey, Laggala area of Matale District, which had been regarded as one of the most "traditional" area in the Kandyan highlands. The survey located several appropriate purana villages in Laggala. Madumana was selected out of them because the villagers cultivated not only paddy land but also chena sites on a large scale so that such a cycle of cultivation facilitated the comparative analysis of labor exchange between these two different agricultural processes. But, after I began intensive field work in Madumana in May 1981, I came to know that the cultivators in the colony settlements under the Minipe irrigation scheme organized labor exchange on a larger scale than those in Madumana. I then went to see these colony settlements located several miles from Madumana and decided to select in addition to Madumana two different colony settlements for study. One was Aliyawala where most settlers had come from Madumana and were genealogically related, and the other was Nuwara Yaya where most settlers had come from various different villages in Kandy District and were rarely related to each other in the genealogical sense. These two colony settlements were selected because I thought that, on the one hand, labor exchange behavior in these colony settlements could be compared with that in Madumana, and, on the other hand, that in Aliyawala could be compared with that in Nuwara Yaya. The encounter with these two colony settlements appeared later considerably significant for field work. This is because labor exchange behavior there broke my former idea that labor exchange would prevail only in the subsistence economy of purana villages and made

me realize that due to the economic importances of labor exchange, it prevailed even in these colony settlements where the production was not for the subsistence but for the market. Consequently, labor exchange in the colony settlements made me oriented from the cultural and communicative analysis to the economic analysis of labor exchange in the peasant agricultural production. Without encountering these colony settlements, I would have been puzzled by my own romantic interpretation of Madumana's "native theories" (Bourdieu 1977 : 19), embroidered by the normative and Buddhist ideology about labor exchange only to understand a small part of labor exchange behavior.

As mentioned before, intensive field work was begun in March 1981, and ended in June 1982. Further, several occasional visits to the field for the complementary data collection were undertook between then and January 1983. I was aided by two field assistants, both University graduates with a good field experience. They were employed since we had to carry out the general ethnographic field work and also observe labor exchange behavior during the almost same period (paddy and chena cultivation in 1981) in the three different settlements. We lived in Madumana and also in Maraka nearby Aliyawala and Nuwara Yaya, and frequently moved between the two places.

A great deal of information was collected by surveys covering all the households in these three settlements notably basic census data, details of occupations, income and expenditure, and kinship. The natural decision making approach furnished much information on the

cultivators' ideas about their decision making process regarding labor exchange and complementary labor mobilization, and these ideas collected through interviews were examined together with the information obtained through our participant observations on their actual exchange behavior. However, since there were approximately nine hundred occasions of labor co-operation which included at least one labor exchange relation during a few months period, some occasions could not be directly observed by us. But, the detailed information were later collected through interviews with the participants. It could be done since most cultivators surprisingly remembered such information as their own operations and reciprocations. After the cultivation season was over, the data in every occasion of labor exchange was cross-checked by the data from both the helper and the host cultivator and the contradicted data were corrected by the second interviews with the participants of the occasion. In addition to exchange labor, we collected the data on the other forms of labor co-operation and hired labor in each household throughout the cultivation season. Through field work, we thus collected the qualitative aspects (especially the cultivators' idea about their decision making process regarding labor exchange and complementary labor mobilization) and quantitative aspects (especially the flow of exchange labor, the other forms of labor co-operation and hired labor in each locality) of labor mobilization in the three settlements.

Along with the above busy schedule of field work, we took part in their daily life and enjoyed cordial and warm relationship with those people in the settlements. These experiences implicitly

helped me to locate their agricultural activities including labor exchange in a wider socio-cultural context of each settlement and understand their meanings clearer.

The Organization of this Thesis

This thesis consists of eight chapters including the introduction. In Chapter II, I introduce the three agrarian settlements in Laggala, where I studied various labor exchange practices, in order to clarify the various contexts in which labor exchange took place. Chapter III provides some institutional background of labor co-operation in the settlements, including the typology and the institutional rules of labor co-operation. Chapter IV presents a systematic model of the decision making process regarding labor exchange and complementary labor mobilization. Since the model presented in Chapter IV is very abstract, Chapter V provides the detailed accounts of the decision making process especially in relation to ecological and agricultural contexts. Chapter VI examines some statistical tendency of generosity and tolerance of imbalance in labor co-operation and clarifies in what context the peasant cultivator generously helps the others. Chapter VII presents the detailed accounts of the decision making process especially in relation to competitive exploration for exchange labor in the locality. Finally, in Chapter VIII, I summarize the above analyses and discuss some ethnographic and theoretical implications.

CHAPTER II

THREE AGRARIAN SETTLEMENTS IN LAGGALA : MADUMANA ALIYAWALA AND NUWARA YAYA

This Chapter presents a brief description of the three agrarian settlements in Laggala where I studied various labor exchange practices. While Madumana is a purāna (old settled or "traditional") village, Aliyawala and Nuwara Yaya are colony settlements. The common feature of these settlements is, as shown at the latter part of this Chapter, that the cultivators still organize labor exchange on a large scale at various stages of cultivation. This is the reason why these settlements were selected for the research. In spite of the common feature of labor exchange, the ecological, social and economic character of the settlements differs widely between them, so that the pattern of labor exchange also vary from one settlement to another. The description of these different settlements makes clear the varying ecological, social and economic background of labor exchange discussed in the following Chapters.

The Settings of Madumana, Aliyawala and Nuwara Yaya

The three agrarian settlements are located in Pallesiya Pattuwa of Laggala Division in the north-east of Matale District, Sri

Lanka[1]. Laggala, lying between the Kandyan highlands and the Dry Zone plains of Bintenna, is broadly divided into two geographical areas. One is the area which covers the east slope of the Kandyan highlands, and which includes many Sinhalese purāna villages. Madumana is one such village in this area, and this area is generally regarded as remote and traditional. The other is the area which covers the Dry Zone plains on the west bank of Mahaweli river. In this area, there had been only several dispersed villages of Vedda[2] descent till the area came under the Minipe Irrigation Scheme in 1970. With the scheme, many Sinhalese settlers have come from villages in Matale and Kandy Districts and have settled down in many "colonies", as the settlements are called. At the same time, those villagers of Vedda descent have also been absorbed into the colonies. Aliyawala and Nuwara Yaya are new Sinhalese settlements of this kind. (See Figure 2-1).

Madumana is situated four miles from the small town center, Pallegama where the office of the Assistant Government Agent (A.G.A.), the Post Office, the Government Hospital and a few shops are located. Since Madumana is surrounded by thick forests, the villagers have to walk along the footpath through forest to arrive at the bus road

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1. Sri Lanka is climatically divided into three zones: the Wet Zone; the Intermediate Zone; and the Dry Zone. Annual rainfall(m.m.) ranges between 2285 and 5100 in the Wet Zone, between 1525 and 2285 in the Intermediate Zone, and between 890 and 1525 in the Dry Zone, respectively. There are two cultivation seasons in the Island. Maha is the major paddy season benefiting from the main northeast monsoon, normally starting around October; and Yala is the minor paddy season benefiting from the southwest monsoon, staring around April or May.

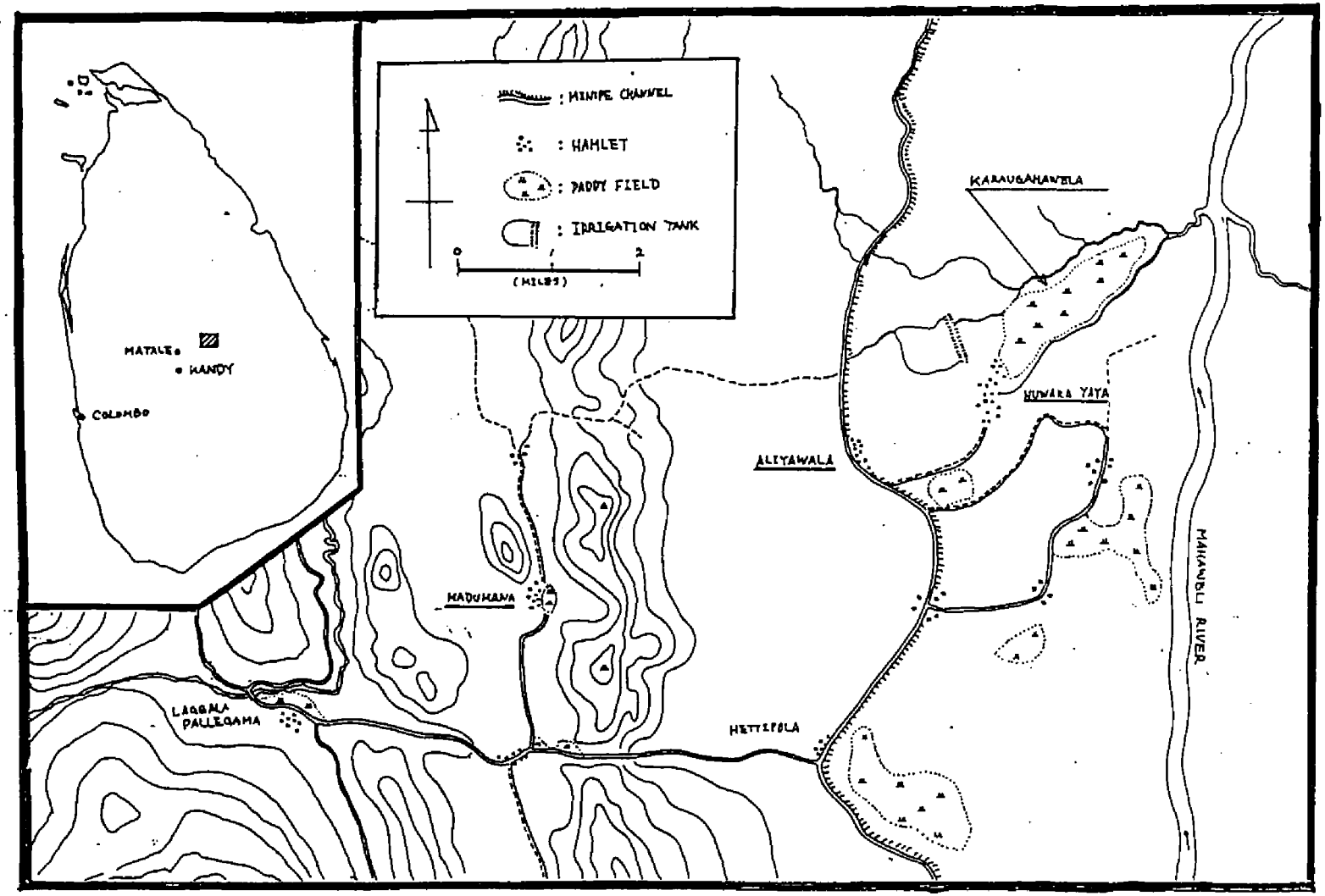
2. Vedda is a small group of aboriginal people alleged to be descendants of the pre-Sinhala inhabitants of Sri Lanka.

between Hettipola and Pallegama. From Pallegama, the bus runs to Matale and Kandy. It takes more than five or six hours for the passengers to reach these regional centers in the up-country of the Island since the road detours around the ranges of the Kandyan hills, and is also not well maintained. The villagers thus rarely go to Matale; they go there only for the treatment of serious illness; and to Kandy for religious pilgrimage. The inaccessibility of this area seems to have sheltered from change traditional kandyan forms of socioeconomic organization, for instance, the institution of "polyandry" - a form of marriage in which one woman has more than one husband (Tambiah 1966). While this area of low altitude is classified climatically as part of the Intermediate Zone of the Island, the parts of this area at higher altitudes are classified as part of the Wet Zone, sufficiently well watered for a few tea estates to flourish. This region is sparsely populated, with small villages, separated from one another by hills and forests, and located near valleys fed by mountain streams and rivers. Paddy cultivation, unlike that of the Dry Zone, is not aided by the village tank (reservoir) but by such streams or small rivers. There are still plenty of forests available for chena cultivation.

Nevertheless, some change is apparent. Due to population growth since the 1950s, many landless peasants have left their villages to settle in colonies under the Village Expansion Scheme and later the Minipe Irrigation Scheme, so that the socioeconomic net-

FIGURE 2 - 1

THE LOCATION OF THREE AGRARIAN SETTLEMENTS



works of people in this region have expanded to include people from other regions. In addition, about ten years ago, some people found gems in a village in the area, and gemming business began. Furthermore, those in the higher mountain area have started to cultivate cardamom, a spice exported to markets in the Middle East.

In spite of such changes, the level of incorporation with the various centers seems to be still low in the villages of this region. Each village in this region is, of course, incorporated into the regional and country-wide socioeconomic and political systems in various ways. But, the level of incorporation with town-centers and the State is rather low due to the inaccessibility of the villages, the low potential for commercial farming, and the neglect of the government to promote rural development in this region. The village economy is largely based on subsistence agriculture and only some surplus crops are taken and exchanged for other food items and goods at the market price in Pallegama. The work of government administration is handled at the local level by the Grama Sevaka (G.S.) - the government officer representing the general administration at village level in place of the former Village Headman. Villagers seldom go to see higher officers in Pallegama or Matale. Politicization in the villages has developed as in many other areas (Robinson 1975; Morrison et al 1979), but due to the absence of large government projects or sufficient job opportunities in this region, the political connection with the Member of Parliament (M.P.) in Laggala is not very beneficial to the villages except in solving various small disputes and conflicts in the villages. Each village is thus self-sufficient in many ways.

There are two types of village settings in this region. One type consists of large villages, each including people of several different castes. These are found in the basins of the bigger rivers, and have a large area of paddy land. The other type consists of villages each composed of one or two hamlets populated by people of the same caste. This type of village has only a small area of paddy land but also has plenty of chena sites around the village. Madumana can be classified as one of the latter type, Rambukkoluwa, which was studied by Tambiah (1965, 1966), is also a village of this kind. Madumana falls within the Galgedewala G.S. Division within the Laggala-Pallegama A.G.A. Division. This G.S. Division covers seven villages including 185 households. Ties of kinship and marriage among people of the same caste spread beyond the locality of the G.S. Division to cover much of the Laggala area. But, due to the tendency of subsistence agriculture to promote self-sufficiency, economic relations between villages are not very strong except for a few cases of ande (share-cropping) tenancy, and some instances of thattumaru tenure (by which tenure of paddy land is rotated among heirs).

Unlike the relatively traditional and rather isolated setting of Madumana, Aliyawala and Nuwara Yaya are located on the flat and open plains under the Minipe Irrigation Scheme. Both settlements are situated five miles north of Hettipola, the small town center where the A.G.A. Office, the Government Hospital, the Post Office and several shops are located. Since there are better bus services here, the settlers can easily travel from the bus stops near the settle-

ments to Hettipola, Hasalaka and Kandy on the right bank of the Minipe irrigation channel, and also to Matale and Kandy through Pallegama.

The Minipe scheme lies on the left bank of the Mahaweli river. It falls within the Uda Dumbara A.G.A. and Hettipola A.G.A. Division. The climate of this region is classified as part of the Dry Zone of the island. There are four stages in the Minipe Irrigation Scheme. The work on Stage I was over by 1955. The work on Stage II was completed by the mid-1960s and that on Stage III by the mid-1970s. Stage IV is in the process of development. At the beginning of the scheme, up to 1962, five acres of paddy land was given to each household, but the size of paddy land given was gradually decreased for later settlers. The settler households on Stage III (including those in Aliyawala and Nuwara Yaya) were each given only two acres of paddy land and half an acre of highland. There are two major administrative problems in the scheme. One is the fragmentation of colony lands, and the other is the encroachment of government land surrounding the settlements. There are legal restraints against transactions in colony land to prevent the settlers from selling off their lands for any reason. The sub-division of lands is illegal. But, in practice, sub-division continues to take place in various ways, so that many land disputes arise, especially among heirs to colony lands. By 1970s, the small extent of lowland still remaining with the government as "reservation lands" (i.e. lands reserved for field tracks, bunds, wind and flood breaks) had been almost entirely encroached upon by colonists and their relatives who had followed

them without having land permits. As a result, some of these encroachers sought paddy land from the settlers on the basis of ande or ukas (mortgage) arrangements, in turn accelerating the subdivision of land. Most of the encroachers however failed to acquire sufficient land to cultivate, and became a reserve labor force, hired for a daily wage at times of peak labor demand. The history and some case studies of the Minipe Irrigation Scheme are found in the writings of Wanigaratne (1977 , 1979).

Colony settlements under the Minipe Irrigation scheme are definitely different from the purāna villages. The colonies have never functioned as self-sufficient socioeconomic units. Each is closely incorporated with urban centers and the State in many ways. The colony's economy is based on intensive paddy cultivation for the market. By selling paddy to the mudalālis (merchants) near the settlements, the colonists obtain money and purchase goods for their daily needs and other purposes. Hence the selling price of paddy and the buying price of agro-chemicals directly affect the domestic economy of households in the settlements. Along with such production for exchange, or commodity production, various cultural values are introduced into the region from urban centers, influencing the colonists' consumption patterns and other aspects of their way of life. Furthermore, this area is under the Minipe Irrigation Scheme, a government sponsored project, so that various government services are afforded to the colony. Such government schemes usually provide various economic interests for the settlers, mudalālis, contractors and politicians so that some government services are exploited politically by the party organizers and the M.P.s in this region for

particular interest groups. Thus, high levels of incorporation with urban centers and the State are apparent and, in practice, social, economic and political relations are generally extend far beyond each settlement.

In addition to such social, economic and political relations, formal organizations at the local level also extend beyond each settlement. For instance, since several colony settlements in this area cultivate paddy land under one large tank to which water is issued from the Minipe irrigation channel, the cultivation arrangements are organized at a level wider than a single settlement by the Cultivation Meetings (Kanna seasonal meetings) constituted by the government officers and the representatives of the settlers from several colonies. The Temple Society is also organized by settlers from several colonies, since not every settlement has a temple. Thus, even local level formal organizations are also maintained beyond the level of a single colony.

The 154 households in the six colonies including Aliyawala and Nuwara Yaya have been given paddy land (2 acres per household) in Karaugahawela paddy field under Karaugahawewa, a restored ancient tank to which the Minipe irrigation channel issues water. Everyday life in this area is highly organized around the intensive cultivation of paddy under a single tank. The households, in these six colonies must follow a collective time-table for cultivation and sometimes engaging, although loosely, some socioeconomic relations such as the exchange of labor and buffaloes. However, considerations of caste and kinship tend to influence the composition of the socioeconomic

network of relationship maintained by each household. Most households prefer to restrict their relations to people of the same caste. Within the same caste, furthermore, they prefer to maintain such ties with kinsmen, since kinship, whether close or distant, is one of the criteria of reliability in the area where most co-settlers are strangers to one another, though those who are felt to be untrustworthy tend to be avoided. In this sense, kinship relations appear to have a dyadic and transactional character in the colony settlements. In addition, relations between castes in the colony settlements tends to differ from those in the purana villages. Since every settlement household has been given the same area of paddy land irrespective of the caste, there is no difference in size of land holdings. Consequently, unlike in the Kandyan villages where many low caste households used to be tenant farmers of the landlords of the high caste, these households of the low caste do not need to be tenants of such landlords, or not to perform the special caste services in this colony area. But, there remains the strong caste ideology of ranking and separation so that people of the same caste tend to have tight socioeconomic ties with one another and avoid people of other castes in everyday interaction, except in the employment of wage labor and in the activity of formal organizations. Their socioeconomic relations hence tend to be geographically dispersed in this area. Caste and kinship relations in the colony settlements consequently appear to differ in significant ways from such relations in the purāna villages.

I have so far offered a general account of the various social

settings in Madumana, Aliyawala and Nuwara Yaya. While Madumana is more or less self-sufficient and isolated from outside, Aliyawala and Nuwara Yaya are, in various ways, far from being self contained socioeconomic units. But, another question must be clarified: whether or not Madumana is tightly integrated internally, and whether or not significant intra-community relations exist within Aliyawala and Nuwara Yaya. In considering practices of labor exchange, these are important questions to grasp, since labor exchange is usually organized within a given locality. Furthermore, since labor exchange is an economic transaction within the process of agricultural production, the institution must be understood in terms of the economic conditions prevailing in each setting. The next sections then describe in more details the socioeconomic character of each settlement.

A Purana Village : Madumana

Population and Education

Madumana has a population of 132 persons (69 males and 63 females) all of whom belong to the govigama caste : the caste of cultivators ranking highest in the Kandyan caste order. They reside in twenty-three households (ranging in size from two to ten people). A household is defined a group of people whose food is owned in common and who share a single cooking place. Out of the twenty-three households, twenty are complete or partial nuclear families; two households are joint families (in each case an elderly couple and their son and his spouse); and one is a nuclear family with a relative. The usual type of household in Madumana is thus constituted

by the nuclear family.

The Madumana primary school teaches pupils up to Grade 5. After Grade 5, some of them shift for further schooling to Pallegama or the colony settlements where larger schools are located and their relatives reside. Among the Madumana residents, education and literacy levels are relatively poor. Of villagers aged eighteen years or more, less than 3 per cent have passed Grade 10, and 45 per cent stopped schooling at Grade 5. This is partly because the Madumana school has not had the classes for higher grades, and partly because the villagers do not consider education as a way towards a good living due to insufficient job opportunities for educated youths in this region. It is thus the common pattern of education that the children attend the school up to Grade 5 and thereafter start agricultural or house work.

Economy of Madumana

The agricultural pattern in the Dry Zone villages is generally based on paddy cultivation in fields irrigated by small village tanks with chena cultivation as a source of cash crops or supplementary crops in case of drought. In contrast, the pattern in the colony settlements of the Dry Zone is largely based on paddy cultivation in fields under major irrigation works and more oriented to the market. However, in the Intermediate Zone, as a result of the government's neglect in its development policies, the villages there, such as Madumana, have been left to maintain relatively traditional agriculture and economic pattern based on small paddy fields

irrigated by mountain streams and chena cultivation on a large scale.

In Madumana, there are only fifteen acres of paddy land. The distribution of owned and "effectively operated paddy holdings"[1] among the Madumana villagers are shown in Table 2-1 in order to see economic differentiation among the villagers. Only one household (whose householder is a native doctor (vederāla) and also the eldest son of the former Village Headman), owns as much as 3.75 acres of paddy land, while ten households have less than 1 acre each and another ten households are landless. Most of the small holders and landless villagers manage to obtain access to land on a badda (leasing) or ande basis.

However, even if they do not have enough land for their subsistence from paddy field, there are plenty of chena fields around the village. Most households cultivates 2 to 4 acres of chena. These chena sites are the government land so that the villagers pay ten rupees per acre per year to the government as rent. There are thirty-two named chena sites within three miles from the village.

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1. The concept of "effectively operated holding" used here was borrowed from Silva (1979 : 52). It is defined as the area of land operated multiplied by the proportion of the harvest owing to the operating household. For instance, the effectively operated holding of an owner-operator with one acre is one acre. A tenant operating an acre and paying a half of the harvest as rent has an effectively operated holding of half an acre. The owner of the one acre tenanted land has an effectively operated holding of half an acre. Thus, the distribution of "effectively operated holdings" reflects on a clearer picture of the distribution of income among cultivators than that of "owned holding" and "operated holding".

TABLE 2-1

DISTRIBUTION OF OWNED AND EFFECTIVELY OPERATED PADDY HOLDINGS AMONG THE MADUMANA VILLAGERS

Size of holding (acres)	Owned holdings		Effectively Operated holdings	
	Number of Households	(%)	Number of Households	(%)
0.00	10	44	5	22
Less than 0.25	2	9	3	13
0.25 - 0.50	2	9	2	9
0.50 - 1.00	6	26	5	22
1.00 - 1.50	1	4	3	13
1.50 - 2.00	1	4	3	12
2.00 -	1	4	2	9
T O T A L	23	100	23	100

The sites with ten to twenty years forests are usually used for one year and then they are abandoned for ten to twenty years fallowing. One site normally contains three to ten plot holders. Selection of the members in a site is not based on kinship but friendship. In every chena season, a few male youths start chena cultivation separately from their own households. Some of them call their girl friends there and get married to them. (cf. Yalman 1967). A few kinsmen of the Madumana villagers from the other villages or the colony settlements also join chena cultivation here every season. In 1981, the Villagers cultivated twenty-nine plots in five chena sites. Table 2-2 shows the distribution of chena plot size.

The average gross income of the household (reckoned by market prices) is shown in Table 2-3. It shows that main income sources are chena, paddy cultivation and the Government subsidy.

Out of 23 households, 21 are getting the government subsidy. Substantially, all of the paddy and millet crops are consumed within the household, while an average of about 20 bushels (600 liters) of maize are sold by each household to the shops at Pallegama.

TABLE 2-2

DISTRIBUTION OF CHENA SIZE IN MADUMANA

Size of chena (acres)	Number of plot holders
Less than 1	1
1 - 2	4
2 - 3	17
3 - 4	6
4 - 5	1
T O T A L	29

TABLE 2-3

DISTRIBUTION OF INCOME SOURCES PER YEAR IN THE MADUMANA HOUSEHOLD

Source	Rupees	Percent
Chena	2,100	40
Paddy	1,630	32
Government subsidy	1,040	20
Others*	420	8
Total	5,190	100

* Others include house garden and animal husbandry.

After harvesting maze and other chena crops for sale, they store them in their houses, and if necessary they take a part of them to the town and exchange them for necessary goods and food items such as salt, dried fish, kerosene, sugar, tea and cloth at market prices. They hardly have more cash than a few hundred rupees.

Intra-Settlement Relations in Madumana

There are a few formal organizations in the village but they are usually dormant. The agricultural society (Govi Sanvidane Samithiya) led by the Farmer's Representative (Vaga Niladari) formally institutionalizes the organization of paddy cultivation, but meetings are rarely held. The Funeral Donation Society (Maranadara Samithiya) is registered in the Grama Sevaka's file but, it does not actually function. The Temple Society (Vihara Vardana Samithiya or Dāyaka Sabhā) stopped functioning several years ago after the monk had run away with a woman. These formal organizations thus do not work and, in practice, cultivation arrangements, assistance with funerals and religious affairs are informally organized by the villagers.

Transactions concerning paddy land are important in identifying the character of socioeconomic relations within the village. But, in Madumana, such transactions create only weak temporary social ties, so that stable or enduring patron-client relationships are not formed in the village. According to the size of paddy holdings, we can divide the Madumana households into three economic groups: economic group (I) - land owner (one household); economic group (II) - small holders of less than two acres of paddy land (twelve households); and economic group (III) - landless household (ten households). Most of economic group (III) have to obtain access to paddy fields on a badda or ande basis, so that here hierarchical exchange relations emerge among the villagers. One landowner rented out 3.75 acres of his land to four households and another household rented out 0.75 acres of his land to two households on an ande basis. These two

land owners used to cultivate the lands by themselves, but, since they do not have sons or sons-in-law in Madumana and wage labor is not institutionalized here, they were obliged to rent the lands out on an ande basis. These two landowners usually give the lands on such a basis to the "good farmers" (honda goviyo) who can cultivate well and produce bigger crops. These patrons often change the tenants from year to year, because they are afraid that if they fixed tenants, permanent tenancy rights will be given to the tenants in accordance with the Paddy Lands Act of 1958.

Thus, due to the above reasons, stable or enduring patron-client relationships are not formed in the village. But, it does not mean the prevalence of serious competition for paddy land. In spite of the fact that the distribution of owned and effectively operated paddy holdings seen in Table 2-1 is quite divergent and that one-third of the households do not cultivate more than 0.25 acres of paddy land, the lack of paddy land does not always lead to serious competition for paddy land. This is because the alternative of cultivating chena sites around the village is available. Competition over the small amount of paddy land seems to be avoided, and there is little conflict in fact.

Kinship ties provide another set of relationships within the village. In Madumana, all the villagers are genealogically related to one another (see Appendix I) and they address each other using kinship terms rather than personal names. They say that all are relatives (okkoma nä-yō). In Kandyan Sinhalese society, besides the household, there are four concepts of kinship groupings held by the

villagers: varige, gedera, vāsagama and pavula. But, in Madumana, few villagers know the term varige which, as described by Leach (1961) and Robinson (1975), refers to a bilateral and at least theoretically endogamous group.

Gedera and vāsagama are kinship concepts of sorts. However, these two kinds of concepts do not correspond to any actual social grouping. Kandyan usually have gedera surnames which are transmitted from father to child. But, no property is held in common by a group of people who have the same gedera name in Madumana or any other villages in this region. The vāsagama name is an index of hereditary status among higher govigama caste members. Most of the villagers in Madumana have "Herath Mudiyanselage" as a vāsagama name, but in daily life, an individual is referred to by a kinship term or sometimes by a personal name, but not by his gedera or vāsagama name.

Pavula (family) is a term with a wide range of meaning. Leach (1961) distinguished the four meanings of pavula as follows: (a) a wife; (b) one woman and her children; (c) "ideal pavula" - the direct biological descendants of one woman, and (d) "effective pavula" - a group of kinsmen allied together for same specific purpose. According to Leach (1961), Yalman (1967) and Tambiah (1965), effective pavula or kindred consists of a bilateral core of closely related kinsmen who form the base of village factions. The effective pavula, at least when it is called into action, appears to be a number of persons associating for some purpose. However, Robinson (1967)

found no effective pavula in Morapitiya. Between the Morapitiya households on the one hand and the whole village on the other hand, she found no intermediary social groups or even quasi-groups.

Like Morapitiya, there are no intermediate groups in Madumana. For instance, unlike Yalman (1967)'s Terutenne, the villagers do not hold New Year ceremony with the members of the pavula group. Another example is one of the most important ritual occasion of adukku (i.e. annual offerings to the deities for a good harvest, health and prosperity). After harvesting chena crops and Maha paddy, it is performed two times a day in the occasion; at the village offering place (adukku pola) in the morning and again at the kitchen of the individual house in the evening. But it is notable that this ritual is usually held at the level of individual household for the benefit of the household, but neither the benefit of a pavula nor the village as a whole. In Madumana, the effective pavula is hence not an enduring or structured group with shared solidarity and interests. The individual always selects specific "action set" (network limited to links purposefully used for a specific end), depending on his particular goals. However, this is not to deny the existence of kinship morality and kinship norms. In general the individual villager adheres to kinship morality and norms, while seeking to attain his own goals by manipulating kinsmen and making use of kinship fictions.

Neither formal organization, economic transactions over paddy land, nor kinship lead to the formation of enduring social groups or relationships in the settlement. But at another level, these independ-

ent households are, to some extent, integrated with one another, although only loosely. This level is constituted by relations of mutual aid within the village. There are various kinds of mutual aid, for instance, lending of rice or other food items, or medicine or money. These kinds of mutual aid are important for the villagers since the nearest shops are located two miles from the village. Apart from these, there are two important kinds of mutual aid, namely assistance at times of crisis, and labor co-operation in agricultural process.

Since Madumana is geographically isolated by the thick forests and far from the Government Hospital in Pallegama, it is difficult for seriously ill persons to be taken to the hospital without being carried by the village youths. During my stay in Madumana, a period of fourteen months, I observed five such cases. Due to their isolation from the other settlements, the villagers are obliged to maintain better social relations with the others to obtain assistance at times of crisis.

In addition, everyday mutual aid is also important in cultivation process. Wage labor is not institutionalized, partly due to the kinship norm of not employing kinsmen and partly because they do not have much cash for such expenditure. Consequently, the requirements of labor mobilization in cultivation process must be fulfilled by organizing various forms of labor co-operation such as exchange labor within the village. Failure in organizing labor co-operation tends to result in inefficient labor use and related troubles.

Madumana contains only twenty-three households in a rather isolated place and so the networks of mutual aid cover all the households in the settlement. Because mutual aid is essential, each household is concerned with its standing in the eyes of others and tries to maintain good relations with all. As a result, their relations in mutual aid tend to be generous and appear to be based on an ideal of reciprocity over the long term. Consequently, such relations in mutual aid loosely integrate the households otherwise rather separate. In the following Chapters, various aspects of labor exchange with a higher tolerance of imbalance are to be discussed in details.

In short, Madumana has various faces: the settlement appears as a simple aggregate of households in the context of formal organizations, economic transactions involving paddy land tenure, and kinship; it resembles a "moral community" in respect of the villager's co-operation and giving of generous mutual aid. In any case, the network of relations involving mutual assistance serves to integrate the otherwise rather segregated households and plays a significant role in this isolated agrarian settlement.

A Colony Settlement: Aliyawala

Population and Education

The 116 Aliyawala settlers (60 males and 56 females) reside in twenty households (ranging in size from three to nine people). While sixteen govigama households have come from Madumana and one govigama household from Pallegama, three beravā (drummer) households

have shifted from Pallegama. Out of twenty households, seventeen are complete or partial nuclear families; three are constituted by joint families (in two cases, a elderly couple and their son with his spouse, and in one case an elderly couple and their daughter with her husband). As in Madumana, the household is normally constituted by the nuclear family.

The children go to the school near the settlement. It teaches up to Grade 8. Some of them go to a larger school in the neighboring settlement for further schooling up to Grade 12. Of colonists, aged eighteen years or more, 6 per cent have passed Grade 10, and 32 per cent stopped schooling at Grade 5. The level of education in Aliyawala is slightly better than in Madumana. This is because the younger generation has been able to attend classes at the larger schools in the colony settlements after coming from Madumana or Pallegama. However, as Aliyawala is located far from Kandy and Matale, and the settlers do not have good connections with town people necessary to secure job opportunities for educated youths, the parents are reluctant to send their children to the school for grades higher than Grade 5.

Economy of Aliyawala

All Aliyawala households are engaged in paddy cultivation, which is the basic source of income. Each household has been given the land permit for two acres of paddy land and one and a half acres of highland. But, by 1982, eight households had mortgaged (ukas) or rented out on an ande basis a part of their paddy lands to

the mudalāli and the wealthier households in the neighboring settlements such as those in Nuwara Yaya. The distribution of owned and effectively operated paddy holdings of any of the Aliyawala settlers are shown in Table 2-4. The average of effectively operated holding is 1.8 acres in Aliyawala (cf. 2.5 acres in Nuwara Yaya). It reveals that they have hardly been able to expand their scale of paddy cultivation, and some of them have reduced it through ukas or ande tenancy.

TABLE 2-4

DISTRIBUTION OF OWNED AND EFFECTIVELY OPERATED PADDY HOLDINGS AMONG THE ALIYAWALA HOUSEHOLDS

Size of holding (acres)	Owned holdings		Effectively Operated holdings	
	Number of households	Percent	Number of households	Percent
Less than 0.25	-	-	-	-
0.25 - 0.50	-	-	-	-
0.50 - 1.00	-	-	-	-
1.00 - 1.50	-	-	4	20
1.50 - 2.00	-	-	5	25
2.00 - 2.50	20	100	11	55
2.50 - 3.00	-	-	-	-
T O T A L	20	100	20	100

In addition to paddy cultivation, most households in Aliyawala cultivated highland crops (millet, maize and a few vegetables). The distribution of the amount of highland by each household is shown in Table 2-5. The cultivation of highland indicates a tendency towards subsistence agriculture (i.e. production for domestic consumption). As we see later, this pattern is in contrast with the pattern in Nuwara Yaya, where few households allocate their labor resources to

highland cultivation.

Average gross household incomes (reckoned by the market prices) are shown in Table 2-6. It shows that while the main income source is paddy cultivation, highland cultivation and the government subsidy are also important for their domestic economy. Furthermore, it also

TABLE 2-5

DISTRIBUTION OF HIGHLAND CULTIVATION SIZE AMONG THE ALIYAWALA HOUSEHOLDS

Size of Cultivation (acres)	Number of households	Percent of households
0.0	2	10
0 - 0.5	10	50
0.5 - 1.0	5	25
1.0 - 1.5	2	10
1.5 - 2.0	1	5
T O T A L	20	100

shows that the total income of the household on average (Rs. 9,610) is relatively low and it contrasts considerably with that of Nuwara Yaya (Rs. 16,100). In fact, it is only about 60 per cent of that in Nuwara Yaya.

From the above data, it is evident that the Aliyawala settlers have not been very successful in agriculture in the colony settlement. It seems to me that this is largely as a result of their relatively poor adaptability to the colony setting in various ways. The Aliyawala settlers came from Madumana or Pallegama about ten years ago. At the beginning of their life in the colony they were embarrassed by the new environment. First, they were not familiar with modern intensive agricultural technique such as the use of high

yielding varieties and various agro-chemicals. Secondly, they did not have much production capital to pay for wage labor and agro-chemicals. In general, modern techniques and production capital are very important factors in determining the adaptability of cultivators

TABLE 2-6

DISTRIBUTION OF INCOME SOURCES PER YEAR IN THE ALIYAWALA HOUSEHOLD

Source	Rupees	Percent
Paddy	7,010	73
Highland crops	1,270	13
Government subsidy	1,020	11
Others*	310	3
T O T A L	9,610	100

*Others includes wage labor and buffalo rent

to the intensive agriculture in the colony settlements. Since the average yield of paddy per acre (Maha season in 1981) was 59 bushels/acre (cf. 64 bushels/ acre in Nuwara Yaya), effects of the above two factors seem to be evident here. Thirdly, they really suffer from the fact that two miles distance separates the settlements area and their paddy fields in Karaugahawela, so that some of them cut back their area of cultivation and instead allocated a part of their household labor to the highland cultivation, with which they were familiar. Finally, they began to spend more money for "unnecessary" consumption foods, such as local liquor and gambling which were not socially acceptable in Madumana or Pallegama. For these reasons, they could not get higher yields of paddy per acre. They also reduced the area of paddy land through ande or ukas tenure, so that they could hardly expand the scale of cultivation. As a

result, two households had gone back to Madumana since 1975 and those remaining in Aliyawala still live near subsistence level without much saving of money. But, according to the settlers in Aliyawala, they earn more than the villagers in Madumana and are comparatively satisfied with their life there. The economic pattern in Aliyawala contrasts considerably, with that in Nuwara Yaya, as I discuss in the next section.

Intra-Settlement Relations in Aliyawala

As I mentioned earlier, the level of incorporation with the urban centers and the State in the colony settlements is very high, and a single colony settlement can hardly be regarded as a distinct socioeconomic unit. In addition to this extensive kind of incorporation, the various local level formal organizations also link together several colony settlements. In Aliyawala, the settlers are involved with such formal organizations as the Cultivation Meetings, the Temple Society and the Funeral Donation Society, but they do not have any formal organization with membership restricted only to Aliyawala settlers. Furthermore, although several households in Aliyawala have rented out a part of their paddy lands on an ukas or ande basis to others, these lands have not been given to other Aliyawala households but to outsiders. This is because they neither have sufficient capital to acquire such lands on an ukas basis nor do they have enough household labor force to cultivate extra paddy land on an ande basis. These two levels of socioeconomic relations (i.e. formal organizations and economic transactions over land) consequently do not form any enduring patterns of social relationship or substantial

land tenure within Aliyawala. But, apart from the above levels, there are two other kinds of socioeconomic relations of significance: first, relations of caste and kinship, and secondly, relations of mutual assistance. I shall examine these kinds of relationship below.

The Aliyawala settlers are divided into two caste groups, namely, beravā people of low caste, the govigama people of high caste. The beravā households are isolated from the surrounding govigama households due to the caste ideology of ranking and avoidance. Normally, the govigama people do not like to consume tea or food prepared by the low caste people such as the beravā in Aliyawala. To avoid such occasions, they rarely visit them or join in the same labor exchange team since in these situations tea or food must be provided by the host.

Due to the above avoidance, the three beravā households in Aliyawala have been isolated from the other govigama households, so that they are obliged to rely for social and economic co-operation upon themselves. This socioeconomic co-operation is strengthened by their close kinship ties (see Appendix I) and by the shared caste identity. They in fact co-operate closely in farming and labor exchange and provide each other with generous mutual aid at times of crisis, and describe themselves as members of "one family" (eka pavula).

In contrast to the beravā households, the govigama households are on the whole not tightly integrated although the govigama settlers (except one household from Pallegama) are all relatives (see

Appendix I) and retain some identify from their origins in Madumana.

Regarding kinship relations among the govigama households, there is no specific formation of, for example, "effective pavula" beyond the household in any context such as the New Year ceremony or other ritual occasions. Even if they all have some sort of kinship morality and address each other with kinship terms, their social relations appear more dyadic and transactional than in Madumana. For instance, I observed three cases of individuals employing their own kinsmen in Aliyawala as wage laborers, although the others criticized this conduct as "immoral" and a breach of kinship norms.

Another significant relation among the govigama households is that of mutual aid. Near the Aliyawala settlement, there are a few shops whose owners (mudalālis) sell the goods on credit to the settlers. Then, within the govigama households, the exchange of rice, other food items and money scarcely takes place. In addition, although mutual aid at time of crisis often takes place within the govigama households, they do not form a settlement-wide network of mutual aid. This is perhaps due to easier accessibility to the government hospital and other small dispensaries in this area. They usually maintain especially good relationships with only a few neighboring households to get assistance in case of sudden illness, but not beyond these few households over the entire settlement.

In contrast to the above two types of mutual aid, labor exchange in the agricultural process links together a wider network within the govigama households in Aliyawala. In fact, the necessity of labor exchange is very high in Aliyawala, as most stages of paddy

cultivation process technically or psychologically require some sort of labor mobilization. Since most Aliyawala households cultivate 1.5 to 2.0 acres of paddy land, the required amount of labor mobilization is higher than in Madumana. But, they do not have sufficient money for hiring wage laborers, so that they have to organize labor exchange to carry out the operations efficiently. Then, when they organize it, they first try to form the labor exchange network with the other Aliyawala govigama households. This is because they have their paddy lands in the same part of Karaugahawela paddy field, and also because they reside close to each other. It is convenient for them to arrange labor exchange teams within the locality of their houses as well as within their locality of the paddy land. But, although such a labor exchange network usually covers several govigama households, it is not always expanded to include all the govigama household in Aliyawala. As I discuss in the following Chapters, such a network of labor exchange is developed and maintained not only in accordance with the morality of kinship, but also according to each household's economic choices regarding which households will be more beneficial in labor exchange than the others.

In short, the Aliyawala community constitutes the two different caste groups: the beravā households and the govigama households. The former group maintains a highly integrated socioeconomic network. This is due to the separation from the surrounding govigama households, close kinship relations and shared caste identity of the beravā people. In contrast, the govigama households do not form any enduring socioeconomic relations among themselves. Each household

maintains close contact with only a few other households and maintains specific relations for specific and temporary purposes. Although labor exchange integrates several govigama households within the Aliyawala settlement, it does not integrate the whole govigama group here. In other words the govigama households are in many ways rather segregated.

Another Colony Settlement : Nuwara Yaya

Population and Education

Nuwara Yaya has a larger population than the other two settlements. The settlers in Nuwara Yaya came from thirty-three different villages in the Kandy District. The 221 residence of Nuwara Yaya (118 males and 103 females) reside in thirty-seven households, ranging in size from two to eleven people. Out of thirty-seven households, twenty-seven belong to the govigama caste, seven to the beravā caste, one to the radā (washerman) caste, and one to the duravā (toddy tapper) caste. Among the thirty-seven households in Nuwara Yaya, thirty-two households are complete or partial nuclear families; five contain two nuclear families (in four cases, an elderly couple and their son with his spouse and in one case an elderly couple and their daughter with her husband). Like the other two settlements, the usual type of household is the nuclear family.

The level of education among Nuwara Yaya settlers is relatively high since they have had better access to the larger schools in the original villages as well as in this colony. In Nuwara Yaya, there is a school teaching up to Grade 8. Further, there is a

larger school teaching up to Grade 12 one mile east of the settlement. Some of the better educated members of the Nuwara Yaya households have obtained jobs in Hasalaka, Kandy and other areas so that they do not live in the colony. Of settlers aged eighteen years or more, 25 per cent have passed Grade 10, and 62 per cent have passed Grade 5 or higher grades. Since the Nuwara Yaya settlers have relatively better kinship and friendship ties with the people in Kandy District and so better job opportunities for educated youths, the parents urge their children to go to school except at the times of peak labor demand.

Economy of Nuwara Yaya

In contrast to Aliyawala, the Nuwara Yaya settlers generally have succeeded in agricultural enterprise in the colony environments. There are several reasons for their success. Firstly, although they did not have much experiences of Dry Zone agriculture, they had much knowledge and experiences of modern intensive agriculture (e.g. using high-yielding varieties of paddy and agro-chemicals) in their original villages located in Kandy District. Secondly, they had relatively more production capital (especially cash) which is necessary for intensive agriculture, since they had some savings or money borrowed from their wealthier relatives in the original villages. In fact the average yield of paddy is 64 bushels per acre in Nuwara Yaya and it is higher than that in Aliyawala. Thirdly, unlike Aliyawala, their paddy lands are located next to the Nuwara Yaya settlement, so that they did not suffer from having to travel a long distance to their fields. Fourthly, they were familiar with market

economy and could manage their domestic economy better than those in Aliyawala. Finally, there is the most significant factors characterizing the Nuwara Yaya economy. This is their strong motivation for accumulating as much money as possible. This motivation is mainly derived from their long term plan to buy land in their original villages. The first generation of the Nuwara Yaya settlers do not like the bad water and hot climate in this Dry Zone area. They are strongly considering handing over their lands here to the younger generations who can manage to live in Nuwara Yaya. Buying some land at their native villages, members of the older generation are hoping to go back there, where their relatives live. Because of such a long term plan, they really work hard and try to maximize their profits through expanding the scale of paddy cultivation, on the one hand, and on the other hand, through exploiting the use of household labor by organizing labor exchange on a large scale without hiring much wage labor.

For the above reasons, agriculture in Nuwara Yaya has been successful and become strongly oriented towards the maximization of profit. As a result, they concentrate on the more profitable wet rice cultivation and are not interested in highland cultivation. Applying proper modern agricultural techniques, they have achieved higher yields of paddy than in Aliyawala, and organize labor exchange on a large scale to save the cash cost for wage labor. In addition, many households have expanded the area of paddy lands they cultivate beyond their own two acres of paddy land. Table 2-7 shows the distribution of owned and efficiently operated paddy hold-

ings among the Nuwara Yaya settlers. It clearly reveals their tendency to expand the scale of cultivation in Nuwara Yaya.

TABLE 2-7

DISTRIBUTION OF OWNED AND EFFECTIVELY OPERATED PADDY HOLDINGS AMONG THE NUWARA YAYA HOUSEHOLDS

Size of holding (acres)	Owned holdings		Effectively operated holdings	
	Number of households	Percent	Number of households	Percent
0.00 - 0.25	-	-	-	-
0.25 - 0.50	-	-	-	-
0.50 - 1.00	-	-	-	-
1.00 - 1.50	-	-	3	8
1.50 - 2.00	-	-	4	11
2.00 - 2.50	37	100	19	50
2.50 - 3.00	-	-	3	8
3.00 - 4.00	-	-	5	14
4.00 - 5.00	-	-	1	3
5.00 - 6.00	-	-	1	3
6.00 - 7.00	-	-	1	3
T O T A L	37	100	37	100

The average annual gross income of the household (reckoned by market prices) is shown in Table 2-8. It shows that the main income is paddy cultivation and no concern is given to highland cultivation in Nuwara Yaya. Further, it indicates that the average income of the Nuwara Yaya household is more than one and a half times as much as that of the Aliyawala household, and three times as much as that of the Madumana household. Such a high income pattern of Nuwara Yaya is obviously realized by proper application of agricultural technique, efficient use of household labor, and expansion of the cultivation scale.

TABLE 2-8

DISTRIBUTION OF INCOME SOURCES PER YEAR IN THE NUWARA YAYA HOUSEHOLD

source	Rupees	Percent
Paddy	14,500	88
Government subsidy	1,400	9
Others*	500	3
T O T A L	16,400	100

*Others include buffalo rent and wage labor.

Intra-Settlement Relations in Nuwara Yaya

As in Aliyawala, the Nuwara Yaya households are deeply embedded in the wider socioeconomic and political systems, and their actual socioeconomic and political relations are individually organized and connected with the mudalālis, the government officers and politicians outside the settlement. Since the households in Nuwara Yaya have been given equal allotments of two acres of paddy land, households are largely independent of each other in terms of land tenure. Local level formal organizations extend beyond the settlement to cover several colony settlements. Hence, the Nuwara Yaya settlement is not a single socioeconomic unit. But, due to some subtle differences in the settings between Aliyawala and Nuwara Yaya, such relations in Nuwara Yaya are slightly different from those in Aliyawala.

As I stated earlier, the Nuwara Yaya settlers are divided into the four different caste groups (i.e. people of beravā, radā, durava and govigama castes respectively), and some households within the same caste group are genealogically related (see Appendix I). Like

Aliyawala, they do not have much interaction with people of other castes except in employing them as wage laborers and in taking roles in the formal organizations in these settlements.

Out of the seven beravā households, five households have close kinship ties and other socioeconomic relations such as mutual aid at times of crisis and labor co-operation, and they describe themselves as a "single family" (eka pavula). But, the other two berava households, which are related neither to each other nor to the above five households, live separately from the other households and each of them have different socioeconomic networks with people of the same caste in neighboring settlements.

The radā and the duravā households also live separately from each other and at the same time from the rest of the Nuwara Yaya settlers. Each of them have different socioeconomic networks recruited from people of the same caste and sometimes from people of govigama caste in other settlements.

Among the govigama caste households, some kinship ties exist among a few households. But, these kinship ties are not very strong and they do not form any "pavula" groupings in the settlement. The other households are not related at all. The dominant character of social organizations among the govigama group is dyadic and very transactional and also temporary. When necessary, they choose certain people for specific short term purposes. For instance, they employ each other as wage laborers; the absence of kinship relations among most govigama households here means they are

not inhibited by notions of kinship morality in this regard. At the same time, most of the labor exchange relations are also clearly dyadic and temporary. Such relations can scarcely form enduring groups. But, there is an exceptional network of labor exchange among those govigama households in Nuwara Yaya. I identified a relatively fixed and enduring network of labor exchange among the households which cultivate a large amount of paddy land and also have a large number of household workers, although these household also had some labor exchange links with the households which cultivate a small area of paddy land and have a low number of household workers. This network among the households cultivating paddy on a large scale seems to have been developed and maintained by their common interest in saving cash costs for wage labor and in exploiting their household labor to the maximum. The members of this network tend to change accordingly when any of them reduces the scale of cultivation or the capacity of the household labor declines. This is because the network of labor exchange in Nuwara Yaya is mainly based on practical considerations rather than on any kind of kinship or communal morality as a primary motivation. In the following Chapters, various such aspects of labor exchange are to be discussed indepth.

Apart from labor exchange in the agricultural process, mutual aid in times of crisis is carried out by a few neighboring govigama households. Due to better accessibility to the dispensaries and the government hospital in this region, the network for such a purpose appears to be included in a few households so that it does not integrate all the govigama household in Nuwara Yaya.

In short, in Nuwara Yaya, the four caste groups live apparently from one another in accordance with the caste ideology of ranking, separation and avoidance. Nevertheless, common caste identity does not always integrate those in the same caste group. For instance, two of the beravā households do not have much relations with each other nor with the other five households. The govigama households do not have much socioeconomic relations among them except for labor exchange in the agricultural process. Due to its high utility, labor exchange creates a network of relations which, although transactional and dyadic, loosely integrate the govigama households in Nuwara Yaya.

The Preference over Labor Co-operation among the Cultivators in the Three Agrarian settlements

At the beginning of this Chapter, I mentioned that the households in these three settlements mobilize labor on a very large scale through organizing labor exchange rather than hiring wage labor. I shall here present a brief account on it.

In general, labor mobilization is a requirement, either technical or psychological, at most stages of paddy cultivation and some stages of chena cultivation. (See Chapter V). Cultivators then have to make a choice for securing external labor force from the following alternatives:

1). recruiting exchange labor and other forms of labor co-operation

2). employing wage labor

3). combination of the above two

4). employing or recruiting no external labor

Out of them, most peasant cultivators in Laggala tend to prefer the first alternative, especially recruiting exchange labor.

This is because, through organizing exchange labor, they do not need to spent money for employing wage, and at the same time they can exploit their household labor for the cultivation to the maximum (cf. Chayanov 1966; Millar 1970). We must here understand why the household labor can be fully exploited through organizing labor exchange. Suppose that a household must complete some operation which technically requires ten workers in a day, and that this household has only two workers for this operation. Then, if the household does not organize any labor exchange, it must employ eight wage laborers for the operation at the cost of the wage; at the same time, the household workers, whose work is replaced by eight wage laborers, do not have any opportunity to work till their next operation begins. But, if this household recruits eight helpers on labor exchange basis for a day, it does not need to employ any wage laborers for the operation. At the same time, the two workers in the household can work not only for their own operation in that day but for the operations of those who came to assist their operation till all the debt of labor is returned. In other words, peasant cultivators, who do not have any other occupation or way of subsistence except with paddy and chena (or highland) cultivation, can exploit their own labor to the maximum through organizing labor exchange. I shall call this type of household labor use as "peasant mode of labor allocation" here. (Also see Chapter IV).

This distinctive pattern regarding labor use and labor co-operation in the these three settlements considerably contrasts with that in elsewhere of Sri Lanka (cf. Gunasinghe 1976; Perera and Gunawardane 1980; Wickremasekera, 1982). Table 2-9 shows labor input figures in Madumana, Aliyawala and Nuwara Yaya as well as those in other seven agrarian settlements of Sri Lanka. Table 2-9 clearly shows a considerably higher rate of exchange labor for total labor input in Madumana, Aliyawala and Nuwara Yaya than that in other seven agrarian settlements. Table 2-9 also shows that the rate of hired labor for total labor input in these settlements in Laggala is very low in comparison to that in the other areas. Due to the lack of detailed information about those seven settlements, it is not known why those cultivators in the other seven settlements did not organize a large amount of exchange labor. But we can at least see the distinct tendency of the labor input pattern in these three settlements in Laggala.

TABLE 2-9

LABOR INPUT FIGURES OF PADDY CULTIVATION IN MADUMANA, ALIYAWALA, NUWARA YAYA AND SEVEN OTHER AGRARIAN SETTLEMENTS

Location	Settlement setting	Total labor input	Hired labor input	Household labor input	Exchange labor input	Date of survey (Maha season)
		(man-days per acre of paddy land)				
Madumana	purana village	60.2	-	34.2	26.0	81/82
Aliyawala	colony	54.2	7.1	25.3	21.8	81/82
Nuwara Yaya	colony	48.3	4.5	19.0	24.8	81/82
Minipe	colony	68.4	22.6	39.1	6.8	81/82
Hambantota	both	52.1	44.9	7.2	-	70/71
Polonnaruwa	both	69.4	53.8	15.6	-	72/73
Elahera (1)	colony	67.7	42.7	24.6	0.4	72/73
Walagambahuwa	purana village	55.0	6.7	40.6	7.8	77/78
Elahera (2)	colony	55.0	25.6	29.5	N.A.	70/71
Kala Oya	purana village	52.0	14.0	34.0	4.0	77/78

NOTE: The figures of exchange labor in Madumana, Aliyawala and Nuwara Yaya include not only attam exchange labor but nikang labor assistance to compare with the other survey data. The classification of exchange labor in detail is to be discussed in the next Chapter. The data of the above locations except Madumana, Aliyawala, and Nuwara Yaya were obtained from various survey data summarized in the publication noted below.

Source: R.S. Fieldson, Farm Labor Input in the Dry Zone. (Colombo, A.R.T.I., 1981), 11, Table 1.

The Three Agrarian Settlements Compared

I have so far presented the general descriptions of Madumana, Aliyawala and Nuwara Yaya. In the previous sections I briefly examined their settings, population and education, economic aspects and intra-settlement relations. These differing social settings provide various contexts, in which labor exchange takes place. I shall here summarize the varying characteristics of the three settlements, bringing them into line with one another and present Table 2-10 which forms a useful summary of some of the points already mentioned.

TABLE 2-10

SOME CHARACTERISTICS OF THE THREE AGRARIAN SETTLEMENTS

Characteristics	Madumana	Aliyawala	Nuwara Yaya
Bus communication	Not very good after walk two miles through forests.	Good	Good after walk half a mile.
Settlement type	A 'purana' village	A colony	A colony
Population	The 132 villages in 23 households (5.7 persons/household)	The 116 settlers in 20 households (5.8 persons/ household)	The 221 settlers in 37 households (6.0 persons/ household)
Native villages of settlers	Madumana	Mostly Madumana, a few Pallegama.	A number of different villages in Kandy District.
Economic pattern	Subsistence	Production for market but still in a level of subsistence.	Production for market with strong orientation for profit.

TABLE 2-10 (Continued)

Characteristics	Madumana	Aliyawala	Nuwara Yaya
Cultivation pattern	chena/paddy	paddy/highland	paddy only
Average holdings of paddy land (acre)	0.7	2.0	2.0
Average holdings of operated paddy land (acre)	0.6	1.8	2.5
Paddy yield per acre (bushel)	48	56	64
Average gross income (Rupees)	5190	9610	16400
Extent of incorporation	low	high	high

TABLE 2-10 (Continued)

Characteristics	Madumana	Aliyawala	Nuwara Yaya
'Villageness'	A relatively isolated village.	A part of the regional colony system	A part of the regional colony system.
Formal organization	A few organizations in the village but no functioning.	A few organizations functioning over several colony settlements.	A few organizations functioning over several colony settlements.
Intra-settlement transaction over paddy land.	A few cases but no formation of stable patron-client relationships.	No case observed.	No case observed.
Caste and kinship groupings in the settlement.	All the villagers belong to govigama caste and are genealogically related, but no particular kinship grouping beyond the household is observed.	The households of berava caste form 'effective pavula'. Those of govigama caste do not form any kinship grouping beyond the household, despite of kinship relations among them.	The five households berawa caste form 'effective pavula'. The other households of low caste live separately from the rest of the govigama household.

TABLE 2-10 (Continued)

Characteristics	Madumana	Aliyawala	Nuwara Yaya
		These households of different caste scarcely interact each other due to the caste ranking and avoidance.	Most households of govigama caste are genealogically not related to one another and they do not form any kinship grouping. These households of different caste scarcely interact each other due to the caste ranking and avoidance.

CHAPTER III

INSTITUTIONAL BACKGROUND OF LABOR CO-OPERATION IN THE THREE AGRARIAN SETTLEMENTS

This Chapter presents some institutional background of labor co-operation in the three agrarian settlements. The background presented here will show an outline of labor co-operation in the region that in turn provides basic notion for further actor-oriented analyses in the following Chapters.

As we saw in the previous Chapter, most cultivators in these agrarian settlements prefer to secure requirements of labor mobilization with various forms of labor co-operation rather than with wage labor. But, such an economic motivation cannot be achieved without social and cultural arrangements in the settlements. Whenever they organize labor co-operation for their agricultural operation, they must follow norms of mutual aid and rules of labor co-operation. In fact, the settlers in Madumana, Aliyawala and Nuwara Yaya commonly have similar norms of mutual aid. When their kinsmen need any assistance (udauva), the other kinsmen should give it to them. When their co-settlers or close friends ask for labor assistance, they should help them generously. However, these norms define only a generalized expectation in any kind of mutual aid irrespective of what or how much of assistance is given or returned. Apart from these norms of mutual aid, it is then necessary to see more concrete rules of mutual aid in agricultural context. In this Chapter, I shall present

the typology of labor co-operation and the rules of each type of labor co-operation.

The households in these agrarian settlements receive labor assistance from outside their households in three different forms: attam exchange labor, nikang help and kaiya group work (c.f. Robinson 1968, 1975). These forms of labor co-operation can be used not only for agricultural operation but for various other occasions such as building houses and holding ceremonies. But, these forms of labor co-operation are organized most frequently for agricultural operation which requires more people than the household members alone.

Out of the above three forms, attam exchange labor is most widely used in every day agricultural work. The basic rule of attam labor is that attam labor must be returned by help of the same type and quantity in a short time duration, for instance, plowing for plowing in the same season. Normally, host cultivator individually invites the optimum number of helpers on attam basis outside the household for particular agricultural operation. Some cultivators maintain the relatively fixed members of attam labor team through a cultivation season for the convenience in arranging the rotation of work, but the others change the members at each occasion according to such factors as their necessity of labor mobilization, their fellow cultivators' time-table of operation and social relationships between the host and the helpers. If the cultivator has already arranged the optimum number of attam helpers at one occasion, he can reject the other's invitation of attam relation although the rejection must be politely done. Thus, they individually select the members of

helpers for their own benefits. Attam relationship is hence dyadic and temporal and also not obligatory in joining any attam relation with specific people. Anyone can organize attam labor team if he wants to mobilize labor and the others agree to join the team on attam basis. Consequently, cultivators can possibly have a large number of potential helpers on attam basis in the locality as long as reciprocation is assured. In the three agrarian settlements, all the people of the same caste are potential partners unless individual conflicts exist between them. In this sense they can possibly mobilize attam labor on a large scale.

However, there is another type of attam exchange labor in this region. This type of attam labor can be seen in such a context that a cultivator accepts the request of attam relation from his close friends or distant kinsmen even if he has already fixed an optimum number of helpers for particular operation. Such an attam labor takes place in order to implicitly express or develop their close social relationship through fulfilling social obligation of mutual aid. Although this type of attam help also must be reciprocated by help of the same type and quantity in a short time duration, it tends to be more or less generous in reciprocation due to its social character of exchange relation. But, at the same time, due to such a social character of this type of attam labor, the scale of labor mobilization on this attam basis is normally limited to a few man-days of exchange labor at one occasion. This is because, since this type of attam can be organized only between close friends or between distant kinsmen, cultivators have a small number of potential helpers

within their locality.

We can thus identify two types of attam exchange labor. The first type of attam exchange labor (attam (I)) is transactional and oriented to practical benefits of labor mobilization. Cultivators can possibly organize a large scale of labor mobilization on this attam (I) basis. On the contrary, the second type of attam exchange labor (attam (II)) is social rather than transactional, and is oriented to fulfill social obligation of mutual aid among close friends and distant kinsmen. But only a small scale of labor mobilization is possible on this attam (II) basis.

Nikang help is, in contrast to attam, given with nothing expected in return. Nikang generally implies "nothing" in Sinhalese. It is notable here that although labor assistance would not necessarily be reciprocated by help of the same type or quantity in a short time duration, it must be returned later if it is asked. There are analytically two types of nikang help in terms of relationship between host cultivator and helpers.

The first type of nikang help (nikang (I)) is seen in labor assistance between neighboring co-villagers or close friends in the locality. In a small scale peasant agriculture, some cultivator may get late in completing his operation due to various individual reasons such as sudden absence from the settlement. Then, it becomes difficult for him to find labor assistance on attam basis. This is because most cultivators proceed their operation in parallel with the others following the collective time-table of cultivation arrangement so that the cultivator, who has got late in the operation, can hardly

find the fellow cultivators who want to exchange labor in the same kind of operation in this time. If he needs some labor assistance, he must then ask close friends or neighboring household members to give him nikang (I) help. In this case, he must return a more or less similar quantity of labor assistance but in the different kind of work at a different stage of the cultivation process. Due to the limited number of potential helpers for nikang (I) (i.e. close friends and neighbors in the same locality), he can obtain nikang (I) help only on a small scale.

The second type of nikang help (nikang (II)) is found between close kinsmen, especially between the members of effective kin group or pavula. In general, ego would be helped nikang (II) by all his first degree relatives as well as his ävässa massinā (first cross-cousins, WBs, ZHs), his ävässa māma (MBs and WF) and his ävässa bāna (ZSs and DHs). While kinsmen in these categories may be invited to offer their labor assistance to ego, they often come to help nikang without any invitation if they come to know his need for labor assistance. At the same time, they may choose not to help him if they have a reasonable reason for it. But once these kinsmen decide to help him, it must be nikang but not attam. According to Sinhalese kinship norms in this region, kinsmen in the above categories must help each other for nothing expected in return, and such a mutual aid is said to be one of socioeconomic bases of kinship relationship (nākama). But, in actual contexts, some of them often have conflicts and debates around land inheritance or other problems so that they do not always give nikang help to their kinsmen. In such cases,

those kinsmen, who fail in mutual aid for nikang, are not regarded as fellow kinsmen (nãyo) and they become estranged. In extreme cases, kinship relations are cut except in attending the funeral ceremonies of both sides. Since the number of close kinsmen in the same locality is not so large, the capacity of nikang (II) help is also not so high accordingly. Furthermore, since kinship norms do not define how much of labor assistance to be given or returned on nikang basis, the potential capacity of nikang (II) is also not so large for every day agricultural operation. But, due to kinship intimacy, ego can obtain a large quantity of nikang help from his close kinsmen at least at times of crisis.

As we saw above, attam exchange labor and nikang help are both based on the exchange of 'labor for labor'. But kaiya group work is not such a kind of exchange of 'labor for labor' but the exchange of 'labor for kind' (Gunasinghe 1975). In terms of relationship between host and helpers, we can divide kaiya group work into two types. The first type of kaiya group work (kaiya (I)) is a form of festive labor work in which helpers come to carry out the operation for host cultivator and are given a good "lunch" for assistance. Therefore, kaiya (I) is also called as "muttettu" (lunch) in this region. It is communally organized by the invitation of particular people such as a native doctor (who gives free medical treatment in the settlements), a school teacher and the G.S. in the region. In this sense, the organizational character of kaiya (I) is not dyadic but more or less communal so that a large number of labor assistance can be obtained in one day. On the contrary, the second type of kaiya group work (kaiya (II)) is a form of mutual aid at times of

crisis among the co-villagers or fellow cultivators. In this type, the close kinsmen or good friends of the householder in illness or other troubles informally organize the kaiya group work on a communal basis to carry out the agricultural operation by a large number of helpers. Here, although lunch is provided, it is not essential. Since every peasant farmers always have the possibility of crisis during one's life time, they insure their unstable agricultural operations through maintaining this kaiya (II)group work in the settlement.

Thus, there are two types of kaiya group work. Both kaiya (I) and kaiya (II) are organized in a communal or settlement level so that these two types of kaiya bring about a large scale of labor co-operation to the host cultivator. But, there is a organizational difference between them. While kaiya (I) is seen as the exchange of labor for kind within a hierarchical relationship (e.g. a native doctor - his patients; a school teacher - his pupils' parents; the G.S. - the settlers in his division), kaiya (II) is seen as the exchange of labor for labor over the long term in the egalitarian relationships among co-settlers.

Then, various forms of labor co-operation can be classified into three categories (and two different types of each category) in terms of four distinct factors. They are: (a) the character of reciprocity, (b) the relationship between host and helpers, (c) the organizational character and (d) the function of labor co-operation. Figure 3-1 summarizes the above typology of labor co-operation and the distinct factors. It is notable that this typology is not only

FIGURE 3-1

THE TYPOLOGY OF LABOR CO-OPERATION

	Reciprocity	Relationship between the host and the helpers	Organization	Potential scale of labor mobilization
Attam (I)	Reciprocation by help of the same type and quantity in a short time duration.	Co-settlers	Dyadic	Large
Attam (II)	Same as the above	Close friends or distant kinsmen.	Dyadic	Small
Nikang (I)	Reciprocation not expected, but, if it is asked, labor assistance in different kind and quantity is returned as nikang help.	Close friends	Dyadic	Small
Nikang (II)	Same as the above	Close kinsmen or 'effective pavula'	Dyadic	Small
Kaiya (I)	'Labor-kind' exchange	Super-ordinates and subordinates	Communal	Large
Kaiya (II)	'Labor-labor' exchange in a long term	Co-settlers	Communal	Large

etic but also emic since cultivators are in fact very concerned with the above characters of each form of labor co-operation when they organize them. This typology thus provides far more detailed accounts on labor co-operation than the simple typology of attam, nikang and muttettuwa by Robinson (1965, 1975).

Cultural rules shown in Figure 3-1 govern behavior in labor assistance in these agrarian settlements. These rules of several forms of labor co-operation define what should or may be given or returned in a given type of situation defined in terms of the specific relationship between host cultivator and helpers. However, it should be noted that these rules do not always specify precise kind and exact amount of labor assistance to be given or returned. Instead, they generally prescribe a range of acceptable kinds and quantities of labor assistance in a given situation. Then, what decides such a precise kind and quantity of labor assistance? It is the individual's choice that decide such precise contents of labor co-operation in relation to a given situation. In other words, an individual must decide the indeterminate part of the cultural rules of labor co-operation in a given situation. Normally, the individual decision can often be, although not always, understood in terms of the individual desire to maximize the opportunity for his benefit or profit. Although such a decision is made within the normative framework of Sinhalese culture and within the bounds set by the above rules of labor co-operation, an individual normally exercise his strategy for a maximum return. In this sense, actual practice of labor co-operation varies from one situation to another even if the above cultural rules are unchanged. Such detailed analyses of

individual strategy in labor co-operation are to be discussed in the following Chapters.

CHAPTER IV

THE DECISION MAKING PROCESS OF LABOR EXCHANGE AND COMPLEMENTARY LABOR MOBILIZATION

Last Chapter described the institutional arrangements of labor co-operation in Madumana, Aliyawala and Nuwara Yaya. However, such institutional arrangements are merely a background of practices of labor co-operation, because they do not explain how cultivator decides to recruit the precise kind and quantity of labor assistance for his agricultural operations in a given context. In order to understand such actual practices of labor exchange and complementary labor mobilization, I shall focus on individual decision making process regarding labor exchange and the other forms of labor mobilization in this Chapter.

Along with the actor-oriented approach which I discussed in Chapter I, I shall examine the decision making process with regard to labor mobilization for agricultural activities in Madumana, Aliyawala and Nuwara Yaya. Here the decision making process regarding labor mobilization involves that of recruiting attam exchange labor, nikang help and wage labor for the decision maker's agricultural operations.

In any agrarian situation, before carrying out each stage of cultivation, every cultivator makes the best possible arrangement of labor mobilization. In Sinhalese agrarian settlements, there is no

permanent work unit such as the extended family or corporate kin group beyond the household. Cultivators then have to co-operate with their fellow cultivators in the locality. Since most cultivators lack money for hiring wage laborers, they consider attam exchange labor as the primary or optimum form for labor mobilization. Considering various aspects or utilities of labor exchange, they calculate the most feasible and advantageous arrangement of labor exchange. And then they competitively explore for exchange labor, that is, for helpers to join on attam basis from their own or other neighboring settlements. In some cases, however, they may not be able to mobilize sufficient labor even if they exploit the full capacity of exchange labor available to them. They then consider complementary labor mobilization, that is, whether or not other labor forms (nikang help and wage labor) should be recruited. It is decided here according to the availability of nikang help and the availability of money for wage labor. The decision making process with regard to labor mobilization thus consists of several steps, and it takes hours or days for the decision maker to reach the final decision since he has to go here and there to find attam or nikang helpers [1].

This Chapter provides a basic model of decision making process of labor exchange and complementary labor mobilization. This model is based on my field work data in Madumana, Aliyawala and Nuwara Yaya. In the course of the field work, following the natural decision making approach together with ethnographic interpretation, I did

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1. In this chapter, kaiya group work is ignored since it is not a common form of labor co-operation among the cultivators. See Table 6-1 in Chapter VI for the statistical detail.

comprehensive indepth interviews with most cultivators in these settlements to find out the cultivators' ideas on labor exchange and complementary labor mobilization, and also observed their activities as they made their decisions, especially the competitive search for attam helpers. These interviews and observations covered decision making processes at eleven stages of paddy cultivation in Madumana, Aliyawala and Nuwara Yaya, and also decision making processes at five stages of chena cultivation in Madumana. From a large number of such analyses, I then abstracted a model of decision making process regarding labor exchange and complementary labor mobilization. In this chapter, for presenting this model, I divide the decision making process into six steps and show the details at each step.

Quantitative aspects of the actual decision making process greatly vary from one household to another due to varying factors of individual household such as cultivated area and household labor capacity. At some steps of the decision making process, I therefore introduce a few mathematical representations of the decision making process to generalize them quantitatively.

Through the above analytical strategy, I intend to clarify the following two points;

1. how decision maker decides to recruit precise kind and quantity of labor assistance to his agricultural operation in a given context;

2. what kinds of factors qualitatively and quantitatively affect the decision making process.

In this chapter, after presenting the six steps of the decision making process, I shall discuss a more simplified picture of it to clarify

the above points.

The Decision Making Process of Labor Exchange and Complementary Labor Mobilization

Following the framework of the natural decision making approach, this section provides the model of the decision making process regarding labor mobilization. The individual decision making process here is divided into the six consequent steps as follows:

Step 1: Pre-attentively narrowing down all potential alternatives into a feasible subset of alternatives.

Step 2: Identifying a feasible subset of alternatives.

Step 3: Listing aspects of the alternatives.

Step 4: Selecting one aspect and ordering the alternatives with regard to this aspect.

Step 5: Passing the ordered alternatives under the constraints.

Step 6: Reaching the final choice and going on to decision making with regard to complementary labor mobilization.

These six steps include two consequent but different processes of decision making. The first one (Step 1 to the former part of Step 6[1]) is regarding the decision making of labor exchange: and the second one (the latter part of Step 6) regarding the decision making of complementary labor mobilization. Here, the second decision process is given little attention since this process is largely dependent on the first one; consequently, it is not very significant in the whole process of decision making; and furthermore, this thesis is primarily concerned with labor exchange rather than with complemen-

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1. Among these steps, Step 1 corresponds "Stage I" in Gladwin's (1980) two stage model of the natural decision approach, and other steps correspond to "Stage 2" in her model.

tary labor mobilization.

Step 1 : Pre-attentively Narrowing Down All Potential Alternatives into a Feasible Subset of Alternatives

Each cultivator in those three agrarian settlements is potentially confronted with a large number of alternatives in choosing one particular arrangement of labor mobilization at each cultivation stage. The cultivator may possibly recruit his required labor force from outside the household in such forms as attam exchange labor, nikang help and wage labor. For a given amount of required labor mobilization, the cultivator may potentially choose from a large number of the combination of those three forms of labor, that is, a large number of potential alternatives in arranging the required labor mobilization.

In spite of a wide range of potential alternatives open to the cultivator, he quickly or pre-attentively narrows down these alternatives to a feasible subset of alternatives that satisfy certain minimal conditions. This process takes place at the first step of the whole decision making process. There are two minimal conditions in these three settlements. One is that wage labor is not preferred to be used for labor mobilization. This condition is derived from the socioeconomic situations in these agrarian settlements. (See the third section of Chapter II). In any case, due to this minimal condition, the cultivator here drops the alternatives which include wage labor. Another condition is that nikang help is not preferred for every day labor mobilization. This is because, according to the cultivators in these settlements, nikang help normally contributes only a small

amount of labor on urgent occasions, where reciprocation is not immediately required, so that it is not suitable for labor mobilization in every day or routine operations. At this step, the decision maker hence drops the alternatives that include nikang help too.

These two minimal conditions thus make the decision maker narrow down a large number of alternatives into a feasible subset of alternatives, which contain only attam labor for labor mobilization. It should be noted here that although the recruitment of nikang help and wage labor may be considered in the latter part of Step 6, they are not considered between Step 1 to Step 5. At this time, the cultivator tries to mobilize as much attam labor as possible.

Step 2 : Identifying a Feasible Subset of Alternatives

A feasible subset of alternatives in recruiting exchange labor is identified at this step. The feasible subset of alternatives normally varies from one household to another since the range of alternatives depends on the individual factors of a given household such as the number of household workers, cultivation area and cultivation technique employed by the household. For the cultivator, the identification of alternatives seems to be easy, because his past experience of labor mobilization immediately makes him consider only a small number of alternatives, given his household factors. In contrast to the easiness for the cultivator, it is difficult for researchers to systematically identify such alternatives facing a given household without mathematical formula. I then introduce a mathematical representation to grasp the decision maker's identifica-

tion of alternatives here.

An equation is formalized from the labor allocation pattern common to all households. This is simple and applicable to any type of cultivation stage as follows:

$$S = D \cdot K \cdot (M + H) \qquad \text{Equation I.}$$

Here, S is cultivation area (acre) for which the household members work. D is the number of days in which a given stage of cultivation process is completed. K is cultivation area (acre) which a man or woman can complete working for one day at a given stage of cultivation (this is a relatively constant variable among cultivators). M is the average number of man-days of attam exchange labor engaged per day during a given cultivation stage. H is the average number of workers in the decision maker's household in a given stage of cultivation. Here, the combination of S, K and H is called the individual household factor. This equation is applicable to any cultivation stage but not to the whole process of cultivation, because K and H varies from one cultivation stage to another.

Given the individual household factor (i.e. S, K and H), we can obtain the range of alternatives in recruiting exchange labor by computing them into this equation. As a result of this calculation, we get several alternatives each of which appears as a particular combination of D and M, although both figures are related to each other in Equation I. Furthermore, apart from Equation I, we can obtain the total amount of exchange labor to be recruited in each alternative. Here, the total amount of exchange labor can be calculated by multiplying D by M. Then, given the individual household

factor, we can obtain several alternatives, each of which is represented by the particular combination of D, M and the total amount of exchange labor.

Let us see one actual case of labor exchange in transplanting of paddy cultivation. Here, I shall examine the alternative open to Madumabanda (N-8) in Nuwara Yaya. Maddumabanda cultivates 2 acres of paddy land. In the case of transplanting, Maddumabanda, his wife and the eldest daughter work or assist the operation in their own field. In Nuwara Yaya, transplanting one acre of paddy field is completed by 22 man-days of female labor force on an average. Hence the individual household factor is as follows:

S : 2 (acres)
K : 0.05 (acres/worker•day)
H : 3 (household workers/day)

Maddumabanda then has the range of alternatives shown in Table 4-1[1].

Thus, each alternative represented by the particular combination of D, M and the total amount of exchange labor can easily be obtained for a given individual household factor (i.e. S, K and H).

Step 3 : Listing Aspects of the Alternatives.

After identifying alternatives, the decision maker considers

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1. In actual situations, the fraction of some alternatives in Table 4-1 can easily be adjusted by small arrangements. For instance, the alternative Number 3 is rearranged in such a way that Maddumabanda, over a period of three days, gets 10 man-days of exchange labor for two days and 11 man-days for one day.

TABLE 4-1

THE ALTERNATIVES OPEN TO MADDUMABANDA (N-8) IN TRANSPLANTING OF PADDY CULTIVATION

Alternative Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14
D	1	2	3	4	5	6	7	8	9	10	11	12	13	14
M	37	17	10.3	7	5	3.7	2.7	2	1.4	1	0.6	0.3	0.1	1
The total amount of exchange labor	37	34	31	28	25	22	19	16	13	10	7	4	1	0

Maddumabanda's household factor - S : 2 (acres), K : 0.05 (acres/worker·day)

H : 3 (household's workers/day)

aspects of the alternatives. The natural decision making approach generally assumes that an aspect is an advantage or dimension or factor or feature of an alternative : an alternative is a set of aspects. An alternative consequently represents values along some fixed quantitative or qualitative dimensions (e.g. price, specific quality, comfort). In the course of the decision making process, aspects that are included in at least one alternative are mentally listed or considered by the decision maker.

In general, various aspects or advantages of labor exchange practices have been pointed out by several anthropologists such as Bennett (1968); Moore (1975) and Karunanayake (1980). These various aspects or advantages can conceptually be understood in terms of the notion of "economy of scale". According to Schneider (1974 : 234):

> "Economy of Scale" implies the increase in profit or utility that come with increase in the size of the production enterprise and consequent decline in costs. Mass production is an example of economy of scale, as is pooled labor for cultivation in an African village.

In the context of labor exchange, it is easily understood that, even if reciprocal labor exchange almost results in no increase in the size of labor force or in the amount of work done, increase in the size of labor mobilization makes it possible to use labor efficiently and also to provide the cultivators with various physical and psychological advantage. However, the above notions of various aspects or advantages of labor exchange are merely the researcher's ideas on labor exchange rather than the labor exchange actor's. In contrast, the natural decision making analysis finds it necessary to understand what sorts of aspects or advantages the decision makers themselves consider in these three agrarian settlements.

The cultivators in these settlements claim that four aspects or advantages of 'alternatives' (i.e. potential arrangements of exchange labor) are available to them. There are four aspects raised by the cultivators: psychological encouragement; the satisfaction of quick completion of operations; fulfilling technical requirements by labor mobilization; and fulfilling social obligation of mutual aid.

The first aspect raised by cultivators is psychological encouragement. Stressing the emergence of collective responsibility through labor exchange practices, they claim the psychological encouragement derived from collective responsibility as an aspect of the alternatives. According to them, such encouragement is achieved in the following three ways. One is that practices of labor exchange tend to be extended to cover the tasks of each member of the labor exchange team, including the tasks of members who get sick or have other troubles. In general, the peasant cultivator is always afraid of delay in his operations, since the cultivation plot which suffers from delays may be either affected by water shortage or damaged by predators or unexpected rainfall. In any case, delay in cultivation will result in a bad harvest. Consequently, organizing labor exchange with reliable friends and neighbors can assure the cultivator of labor assistance, especially nikang (1) at the time of crisis such as illness and sudden absence from the village. In other words, they "do not feel anxiety" (baya nä). In addition, the collective responsibility results in encouragement in another way. This is achieved because collectively fixed schedule of working rotation through labor exchange forces cultivators to work according to the

schedule. The cultivators pointed out that if a cultivator works alone in the field, he may feel lazy to work and leave the operation uncompleted for a while. But, they said, if the cultivator organizes labor exchange with the co-villagers, he has to work according to the collective schedule and "does not feel lazy" (kammeli nä). Furthermore, the cultivators claim another kind of encouragement through labor exchange practices. Working together in labor exchange naturally provides occasions for joking and gossiping. This dimension of labor exchange adds fun to the work in the field. Thus, the emergence of a sense of collectivity or solidarity through labor exchange practices results in psychological encouragement to the cultivators in the above three ways. This is the first aspect of labor exchange in the minds of the cultivators of these agrarian settlements.

The second aspect raised by the cultivators is also psychological, but it is slightly different from the aspect of psychological encouragement. This second aspect is the satisfaction of "quick completion of work" (väda ikman). Comparing working alone with working together on attam basis, the cultivators prefer working together rather than alone, even if the cultivators have to spend the same amount of labor in both cases due to the rule of reciprocity. This is because the feeling of satisfaction derived from quick accomplishment of his operation is considerably higher than that of a slow completion only by the household labor. According to the cultivators, this aspect of labor exchange is often sought for in such a occasion that the cultivator wants to see the result of cultivation

as soon as possible. One such instance is at harvest time, when every cultivator wants to see the result of his drudgery of a whole cultivation season immediately.

The third aspect of labor exchange is fulfilling the technical requirement of an efficient use of labor through mobilizing exchange labor. In any agricultural process, some stages of cultivation technically require a particular speed of operation or a specific number of co-workers. Although such a requirement is not always absolute, fulfilling the requirement often results in better use of labor and in turn leads to various advantages such as a better quality of operation; some reduction in the size of labor force required; and the protection of crops from the predators and unexpected rainfall.

The fourth aspect of labor exchange considered by cultivators is the fulfillment of obligations of mutual aid. This aspect of labor exchange is social and moral in character, rather than economic or technical. Fulfilling social obligations of mutual aid is intended to maintain existing social relations or to develop new social ties, whether or not maintaining or developing such social relations may consequently be intended for other purposes such as economic and political goals.

Thus, the cultivators in Madumana, Aliyawala and Nuwara Yaya mentally list these four aspects of various arrangements of labor exchange at Step 3 in the decision making process. In spite of the four aspects raised by the cultivators, however, all aspects may not be considered at once in the decision making process. Instead, one aspect with the greatest utility or subjective worth is selected to

order the alternatives. This process is discussed below at Step 4.

Step 4 : Selecting an Aspect and Ordering the Alternatives on the Basis of the Aspect

After listing aspects of the alternatives at Step 3, the decision maker considers the context in which exchange labor is mobilized. Considering the context, he eliminates some aspects on which alternatives are not hierarchically ordered, and selects one aspect with the greatest utility or subjective worth. The decision maker then orders alternatives according to his aspect. Step 4 thus includes these two sub-steps: selection of one aspect; and ordering alternatives on it. I shall here describe Step 4 in a more or less abstract manner to show the general pattern of this step, but in Chapter V, I will describe Step 4 in various actual settings, especially the selection of aspects in paddy and chena cultivation.

In the decision making process of labor exchange, there are two broad but distinct contexts or idioms in which the decision maker is situated. These contexts are important here because the character of the context determines the selection of the particular aspect. The first context is a pragmatic one in which the decision maker feels the necessity of labor exchange for pragmatic (psychological or technical) advantages rather than for fulfilling social obligation of mutual aid. Cultivators who cultivate a relatively large area and have insufficient household labor, are usually pragmatic in selecting the aspect. It implies that they form the exchange relation of attam (I) type as a result. The second context is a social one in which the decision maker feels the necessity of labor exchange for express-

ing some social relations rather than for any pragmatic necessity. Cultivators, who have only a little land to be cultivated but have a large excess of household labor, are potentially in such a social context in selecting the aspect. It means that they form the exchange relation of attam (II) as a result.

In the course of selecting one aspect, the cultivators in the pragmatic context first eliminate the fourth aspect, (i.e. fulfilling social obligation of mutual aid). It does not mean here that those cultivators, who eliminate the aspect of fulfilling social obligation, ignore and violate the social norms for mutual aid. It merely implies that they put a higher priority on the pragmatic advantage of labor exchange rather than the social obligations of mutual aid. On the contrary, they rarely ignore or violate norms of mutual aid. This is because they, as a result, "help each other" on attam basis although they are primarily motivated not so much by moral enforcement but by the pragmatic expectations of mutual material benefit. In any case, the fourth aspect is eliminated by the cultivator in the pragmatic context. Then, the decision maker selects one particular aspect with the greatest utility or subjective worth from three remaining aspects. These are, as discussed at Step 3, psychological encouragement, satisfaction of quick completion and fulfilling technical requirement of labor mobilization. Since each utility or value of these three aspects is closely related to psychological or technical conditions or specific work processes in the field, most cultivators tend to select one particular aspect at a given cultivation stage. In some stages of cultivation, most cultivators emphasize the

specific technical requirement of labor mobilization. In such stages, the third aspect, (i.e. fulfilling technical requirements of labor mobilization) is selected as the aspect with the greatest utility or subjective worth. This is because fulfilling technical requirement results in optimum labor utilization and minimizes the loss and damage of crops in various ways. Unlike this aspect, the other two aspects of labor exchange are not taken up at such cultivation stages since those utilities or values are psychological rather than material. As such stages, cultivators put the priority on minimizing material loss or damage rather than on reducing psychological costs. However, at some cultivation stages which require less technical attention, the cultivators of course do not select the third aspect but eliminate it. Then, they select either the first aspect, (i.e. psychological encouragement) or the second aspect, (i.e. satisfaction of quick completion). If they prefer quick completion rather than psychological encouragement they select the second aspect. If not, they will select the first aspect. (See details in Chapter V).

In contrast to the cultivators in the pragmatic context, those who are in the social context eliminate those pragmatic aspects of labor exchange and exclusively select the fourth aspect (i.e. fulfilling social obligation of mutual aid). This social context or orientation normally emerges if the following three minimal conditions are met. In other words, only when these conditions are satisfied, the decision maker will choose the aspect of fulfilling social obligation. The first condition is that the decision maker cultivates a relatively small area of paddy or chena plot and has a considerable excess of household labor. The second condition is that the decision maker is

requested to join some labor exchange relations by the cultivator who seeks for more exchange labor. The third condition is that he thinks that the acceptance of the request may maintain his social relation with the cultivator who requests exchange labor and may also enhance his social status as a "good cultivator" (honda goviya) without considerable cost to the members of his household. The selection of this aspect thus takes place if the decision maker is in such a socioeconomic situation that the above three minimal conditions are satisfied. In this sense, it takes place individually irrespective of any particular cultivation stage.

It should be noted here that the selection of one aspect does not mean that the decision maker can obtain only the utility or value of the aspect selected. He may enjoy the utilities or values of some or all aspects. In other words, the decision maker selects one aspect because of the greatest utility or subject worth, although he may enjoy other utilities too. This is one of simplifying procedure of the natural decision making process. Unlike the formal economic assumption, in which all factors are considered, the actual decision maker does not consider or calculate all kinds of utility or value at once, but selects only one type of utility, that is, an aspect, to evaluate the degree of the utility or value of every alternative. In this way, he simplifies his calculations.

After selecting one aspect, the decision maker orders alternatives on this aspect. In the context of labor exchange, the mode of ordering alternatives differs from one aspect selected to another. Each mode is then described in each aspect selected below.

If the first aspect (i.e. psychological encouragement) is selected as the aspect with the greatest utility or subject value in a given context, the mode of ordering alternatives is simply hierarchical. According to the cultivators, the more the cultivator organizes exchange labor, the more he obtains the psychological encouragement. It means that the alternative first ordered is the alternative whose D is one in Equation I; the alternative second ordered is the alternative whose D is two; the alternative third ordered is the alternative whose D is three; and so on. Since the alternative in which the operation is completed quickest must be the alternative whose D is one, this alternative becomes the alternative first ordered in this context. Likewise, as long as the basic unit of exchange labor is one day of assistance, we can grasp clearly the mode of ordering alternatives by computing a given individual household factor and potential D into Equation I.

The aspect of satisfaction of quick completion also orders alternatives in a similar manner to the aspect of psychological encouragement. According to the cultivators, the shorter the time duration of the completion of a given operation is, the higher the degree of satisfaction obtained. It means that the alternative first ordered is the one whose D is one; the alternative second ordered is the one whose D is two; and so on.

The aspect of fulfilling technical requirements of labor mobilization orders alternatives in two different modes. This difference in the mode of ordering is derived from the nature of technical re-

quirement of labor mobilization. One mode is found on occasions when the quantitative requirement of exchange labor is determined by the particular speed of completion of a given operation. Suppose that the particular required time duration of completion is between one and A days. Then, the alternative first ordered (or the alternatives first ordered) is the one (or ones) whose D is between one and A days. The alternative second ordered (or the alternatives second ordered) is the one (or ones) whose D is beyond A days. But, it seems that the gap of utility or value between the alternative (or alternatives) first ordered and the alternative (or alternatives) second ordered is rather large so that there are only two groups of alternatives: that is, alternatives first ordered which satisfy the technical requirement, and alternatives second ordered which do not satisfy it properly. Another mode is found on occasions when the quantitative requirement for exchange labor is not the specific speed of operation but the specific number of helpers per day. This type of requirement is derived from a certain pattern of division of labor in work process. Suppose that the quantitative requirement of labor mobilization is more than P man-days per day of labor force. Then, the alternative first ordered are the ones whose M is more than P, and the alternatives second ordered are the ones whose M is not more than P. Like the former mode, there is also a big gap between the alternatives first ordered and the alternatives second ordered in terms of the degree of utility or value. In any case, there are two distinct modes of ordering alternatives on the aspect of fulfilling technical requirement of labor mobilization. But in either case, the higher rankings of alternatives can be identified by computing the

particular quantitative requirement (either M or D) into Equation I.

In contrast with the above modes of ordering alternatives, the mode of ordering alternatives on the aspect of fulfilling social obligation of mutual aid is very different. The mode of ordering in fact differs from one decision maker to another. This is because the decision maker orders alternatives on this aspect according to his own socioeconomic situation. As I mentioned in Chapter III, social norms of mutual aid compel the people to follow it and not violate it, but they never specify the quantity of mutual aid in a given context. Determining the quantity of mutual aid is consequently left for the individual to consider according to his socioeconomic circumstances. As we noted earlier, the following conditions are normally considered: the degree of the availability of the household labor for mutual aid; the quantity which the other cultivator requests from the decision maker's household; and the relation between the decision maker and the cultivator seeking for exchange labor. Because of these individual factors, the mode of ordering alternatives on this aspect differs from one cultivator to another and the actual description of the mode is left for ethnographic analysis in Chapter VII.

It should be noted here that the selection of the former three aspects will result in attam (I) due to its practical motivation; and that of the latter aspect will result in attam (II) due to its social motivation as I discussed in Chapter III.

Each aspect thus orders alternatives in its concomitant mode. The aspect such as psychological encouragement, satisfaction of quick

completion and fulfilling technical requirement of labor mobilization has a particular mode common to most cultivators in a given cultivation stage, while the aspect of fulfilling social obligation of mutual aid has a mode specific to the socioeconomic situation of the individual decision maker.

To demonstrate the decision making process at this step clearly, I shall examine an actual case of ordering alternatives on the third aspect (i.e. fulfilling technical requirement of labor mobilization). I take the case of Maddumabanda (N-8) in transplanting of paddy cultivation. As we can see in detail in Chapter V, the decision maker normally selects the third aspect in transplanting. This is because transplanting must be completed within two days or at most three days just after the paddy plot has been harrowed. Otherwise, the surface soil would be too hard for the cultivator to carry out the operation properly. After harrowing, in other words, he has only three days at most left for completing transplanting. Now, let us recall the alternatives of Maddumabanda shown in Table 4-1 at Stage 2. There are fourteen alternatives open to Maddumabanda in transplanting. Out of fourteen alternatives, D of alternative No. 1, No. 2 and No. 3 is not more than three, while D of the other alternatives is more than three. Since alternative No. 1, No. 2 and No. 3 fulfill the technical requirements of labor mobilization in transplanting (that is, completing the operation within three days), these are hence ordered first. On the contrary, since the other alternatives do not fulfill the requirement, these are ordered second. We can thus easily obtain the ordered alternatives open to

Maddumabanda in transplanting.

At this step, we have seen two sub-steps, that is, selection of the aspect and ordering alternatives on the aspect. However, these ordered alternatives have to be confronted with the constraints. This process is described at the next step.

Step 5 : Passing Ordered Alternatives Under the Constraints

After ordering alternatives on the basis of one particular aspect, the decision maker imposes some minimal conditions on the ordered alternatives at this step, and drops some ordered alternatives which do not satisfy the minimal conditions. In the natural decision making approach, these minimal conditions are called the constraints. The constraints are in general derived from the environment, social system or context.

In the context of attam labor exchange, the constraints are two quantitative aspects, namely the household's labor reciprocation capacity and the availability of attam exchange labor. As I discuss later, each of these constraints is limited to a certain extent according to the situation of the decision maker. Some ordered alternatives, which do not satisfy the above minimal conditions, are then dropped at this step. This step can be divided into three sub-steps. At the first sub-step, the decision maker estimates the first constraint (i.e. the household's labor reciprocation capacity). As I discuss later, this constraint determines the upper limit of the second constraint (i.e. the availability of exchange labor). At the second sub-step, the decision maker visits several households in his

household network of labor exchange and arranges labor exchange contracts for a given operation without exceeding the first constraint. After such exploration for exchange labor, he again estimates the second constraint at a given stage of cultivation. He then shifts to the third sub-step. At the third sub-step, he imposes the second constraint on ordered alternatives of labor exchange and drops some unrealistic alternatives.

At the first sub-step, the decision maker estimates the first constraint in a given context. This quantitative constraint is represented as follows:

> The household's labor reciprocation capacity : the maximum amount of exchange labor which the decision maker's household can possibly reciprocate at a given cultivation stage with any other households whether or not they are in the decision maker's household network of labor exchange.

This quantitative aspect of the first constraint is not derived from any capacity of the network of labor exchange but from the labor capacity of the decision maker's household itself. Here, the labor capacity of the household implies how many workers in the household can exchange labor at a given stage of cultivation. The logic of this quantitative aspect is based on the simple rule of reciprocity, that is the rule of "give" and "take". In attam reciprocal labor exchange, reciprocity in the short term must be maintained among exchange actors. It means that labor assistance must be returned quickly by the same amount and the same kind of labor assistance. The amount of exchange labor which a given household can obtain is consequently equal to that of exchange labor which this household

can give to the other households. But, of course, the latter amount is not infinite in agrarian settings. In such settings, cultivators proceed with their operations almost in parallel with the others' agricultural calendar and sometimes the collective time-table of water management. Most cultivators carry out the same operation within a period of a few weeks. Since labor assistance must be reciprocated in the same kind of work, each cultivator has only a few weeks in which he can exchange the same kind of labor assistance with his fellow cultivators in the settlement. As a result, even if he intends to give a large amount of attam labor to the others, he cannot do so beyond such a time limitation. Consequently, the maximum he can obtain from the others is also limited to the maximum he can give to the others within such a limited period. In this sense, the household's labor reciprocation capacity determines the upper limit of how much of exchange labor the decision maker's household can obtain from the other households, that is the quantitative aspect of the second constraint (i.e. the availability of exchange labor).

At this sub-step, the cultivator normally estimates his household's labor reciprocation capacity from his past experience. But, more objectively, it can roughly be seen by employing an equation as follows:

The household's labor reciprocation capacity
$= H \cdot (T - D)$ Equation II.

Here, H is the average number of workers in the decision maker's household in a given stage of cultivation. T is the approximate number of days within which most cultivators in the settlement complete their operation in a given stage of cultivation. D is the

number of days in which the decision maker's household members work in their own field. Then, by computing these variables into Equation II, we can obtain the household's labor reciprocation capacity at a given stage of cultivation in a given household.

In any case, the first constraint restricts to a certain extent the upper limit of the second constraint. As discussed above, this is due to the rule of reciprocity in attam labor exchange. However, it is notable that such a restriction may be looser in a particular context. In attam labor exchange with a higher tolerance of imbalance, the cultivator can obtain more exchange labor than his household can reciprocate in a limited period of time. In such contexts as paddy cultivation in Madumana (see Chapter VI), the cultivator may expect some imbalanced attam labor so that he can estimate the upper limit of the availability of exchange labor as being more than his household's labor reciprocation capacity. The degree of tolerance of imbalance in attam labor is hence a significant factor to identify to what extent the first constraint restricts the upper limit of the second constraint in a given context. Further, it affects the decision maker's pattern of choosing partners for labor exchange to form particular organization of exchange labor. (See Chapter VII).

After estimating the first constraint, the decision maker shifts to the second sub-step. At this sub-step, he visits several households in his household network of labor exchange and explores for exchange labor without exceeding the limit imposed by the first constraint. Through such exploration, he arranges several contracts of labor exchange for a given stage of cultivation and estimates the

second constraint, namely the availability of exchange labor for the decision maker's operation. In attam labor exchange, the decision maker cannot expect more exchange labor than the households in his network want to exchange with his household in a given operation. Then, the second constraint is simply defined as follows:

> The availability of exchange labor : the total amount of labor which the households in the decision maker's household network of labor exchange are willing to exchange with the decision maker's household for a given stage of cultivation.

Here, it is notable that the availability of exchange labor is the actual result of the decision maker's exploration for exchange labor in his network. The actual level of the availability of exchange labor varies according to the formation of the network and also the tactical organization of exchange labor within the network. It is hence necessary to examine below the formation of the network of labor exchange and the actual practices of exploration for exchange labor within the network in order to identify what kinds of factor affect the actual availability of exchange labor.

Attam labor is usually organized through the household network of labor exchange. The household network of labor exchange here implies the set of labor exchange links between the decision maker's household and the other neighboring households. One household network may be overlapped by the other household networks, but the overlap is only partial. In other words, each network normally contains a different combination of the households in the settlement.

Such a household network has consciously or unconsciously been formed through complex socioeconomic processes and will be

changed as its socioeconomic circumstances change. For instance, some households have developed their networks through previously established social relations based on caste, kinship, friendship and proximity of residence or cultivation field, while the others have built their networks primarily for pragmatic interests in labor mobilization without any wage cost. However, as I discussed with regard to the pragmatic nature of attam (I) in Chapter III, most of the actual attam networks seem to be formed primarily on the basis of such practical interests rather than social or moral ones. Most households consequently try to develop and maintain a network with a larger capacity for labor mobilization under given socioeconomic conditions. But, due to the differences in the circumstances of individual households as well as in the circumstances of each settlement, especially the degree of generosity and tolerance of imbalance in labor exchange, several different types of network can be seen in the three agrarian settlements in Laggala. Such an example is discussed in the case study of Maddumabanda (N-8) in this section. Further, the other distinct types are examined in detail in Chapter VII. In any case, it is notable here that a household having a network with a larger capacity for labor mobilization is able to organize larger amount of exchange labor for its operations and can carry out the operations more successfully. In this sense, the form of the network directly affects the availability of exchange labor.

Since the network of labor exchange is chiefly formed for the practical or economic interests in labor mobilization, the network may easily change as the circumstances of the cultivators' household

change (such factors as cultivation area, household's labor reciprocation capacity and cultivation techniques are significant here). However, in actual agrarian settings, most cultivators do not experience much change in their household's circumstances over only one or two cultivation seasons. In spite of the unstable nature of the network in the long run, each household network of labor exchange tends to remain relatively unchanged in an equilibrium of competitive interactions for optimizing the mobilization of attam labor, and each network appears to be relatively fixed at least over one or two cultivation seasons.

In general, such a relatively fixed network of labor exchange is maintained not only through the repeated practice of labor exchange but also through regular exchanges of visits to give various information about their cultivation conditions. Due to the lack of any permanent organization of labor co-operation in Sinhalese agrarian society, each cultivator has to find individually his partners for labor exchange in the proximity. In order to find them without consuming much time, he needs sufficient information concerning the others' conditions of the cultivation (such as cultivation schedule, household's labor reciprocation capacity and required amount of exchange labor). This is the reason why the cultivator often visits the households in his network of labor exchange. As a result, he can easily make contracts of exchange labor with those in his network, while he can hardly find even a few contracts of exchange labor beyond the network. This is because the other households beyond the decision maker's network might have their own contracts with those people within their networks so that the decision maker

has little chance to find available exchange partners beyond this network. The cultivator may sometimes find a few extra contracts of exchange labor, but it will be done at the very high cost of the cultivator since he has to visit a large number of cultivators for only a few contracts. Furthermore, he may hesitate to do so because, even if he finds a few, he is always afraid that he may not be able to reciprocate due to his lack of information about their cultivation schedules. The cultivator tends to maintain his exploration for exchange labor within the relatively fixed household network of exchange labor and instead tries to seek for nikang help or wage labor if necessary and if available to him.

Thus, the cultivator always grasps the other households' conditions of cultivation and maintains a relatively fixed household network of labor exchange over the short term. However, it does not mean that the cultivator exchanges labor with all the households in his relatively fixed household network. For instance, on one occasion, some of them have contracts of exchange labor with him, while others do not. This is due to the pragmatic nature of attam labor, especially attam (I). Whether or not a certain household in the decision maker's network engages in labor exchange with the decision maker is dependent upon the household's need of exchange labor but not upon the decision maker's need of it in a given occasion. As I mentioned in Chapter III, if some households have already arranged the optimum number of attam helpers, they are likely to reject his request for attam labor. In this sense, the quick organization of exchange labor even within the relatively fixed

network is crucial to success in labor mobilization. Since exchange labor is a scarce resource during the times of peak demand for labor, most cultivators compete to organize a large amount of exchange labor from a limited number of households in their networks, so that delay in organizing exchange labor often results in failure to mobilize labor for cultivation. Thus, quickness in organizing exchange labor within the network also affects the actual availability of exchange labor.

In sum, at the second sub-step, the decision maker estimates the availability of exchange labor for his operation through seeking for exchange labor within his relatively fixed network of labor exchange. Further, behind the estimation of the availability of exchange labor, the decision maker tries to secure it optimally in two ways, that is by forming a better network of labor exchange in the long run and organizing exchange labor quickly in his relatively fixed network of labor exchange in the short run. In other words, the above two ways securing exchange labor optimally affect the actual availability of exchange labor at this sub-step.

We have so far examined the first and second sub-step at which the decision maker estimates two quantitative constraints (i.e. the household's labor reciprocation capacity and the availability of exchange labor). Through such a discussion we have also seen what kinds of factors affect the actual figure of these two constraints. Here, I shall add the other factor to the above discussion. The other factor here implies the qualitative requirement of exchange labor at a given stage of cultivation. This factor is in fact important in

understanding the actual practice of labor exchange since it affects both the household's labor reciprocation and the availability of exchange labor without any changes in the household structure (i.e. the composition of the household members) and the household network of labor exchange. Normally, some stages of paddy and chena cultivation require specific types of exchange labor such as male or female labor, skilled or unskilled labor and so on. If a particular type of labor is psychologically or technically or culturally required for exchange labor at a specific stage of cultivation, another type of work force is not utilized for the practice of labor exchange. For instance, transplanting does not normally require male labor but female labor in these agrarian settlements, although male labor may be utilized only in their own field operation. In such a case, only female workers in the decision maker's household can reciprocate labor assistance for attam helpers, so that the actual level of the household's labor reciprocation capacity may become almost a half of its full capacity without any change in the household structure. Furthermore, since only female workers in the decision maker's household network can be mobilized as attam helpers, the level of the availability of exchange labor may also become almost a half of its full capacity without any change in the formation of his household network. Thus, the qualitative requirement of exchange labor in a given stage of cultivation heavily affects the quantitative level of these two constraints in actual contexts. The detailed accounts on this requirement of exchange labor in each stage of cultivation are to be examined in Chapter V.

After estimating the two quantitative constraints, the decision maker shifts to the third sub-step. At the third sub-step, the decision maker compares one quantitative aspect of each alternative of labor exchange open to him with the second constraint (i.e. the availability of exchange labor). Since the first constraint always restricts to a certain extent the upper limit of the second constraint, it is not necessary for the decision maker to consider the first constraint here. At this sub-step, one quantitative aspect of each alternative of labor exchange implies the total amount of exchange labor in each alternative. Now, let us recall Step 2 where each alternative open to the decision maker was identified and represented by the combination of its three quantitative aspects (i.e. D, M and the total amount of exchange labor). Out of the three aspects of each alternative, the total amount of exchange labor is referred to here and compared with the availability of exchange labor in order to identify unrealistic alternatives. Since unrealistic alternatives mean the ones whose quantitative aspect exceeds the availability of exchange labor, such alternatives can be the ones whose total amount of exchange labor is more than the availability of exchange labor. Through such operations to all the alternative identified at Step 2, unrealistic alternatives are dropped and ignored at this third sub-step.

Thus, Step 5 of the decision making process of labor exchange is composed of three consequent sub-steps. At the first sub-step, the decision maker estimates the household's labor reciprocation capacity. Then, he again estimates the availability of exchange labor for his household's operation within his household network of labor

exchange at the second sub-step. Here, each household member competes in securing exchange labor in various ways behind the above quantitative estimation of the availability of exchange labor. At the third sub-step, the decision maker identifies unrealistic alternatives and drops them. In the actual decision making process, he quickly find unrealistic alternatives through the above three sub-steps and proceeds to the final choice of labor exchange and complementary labor mobilization at stage 6. However, since Step 5 is very complicated for the observer, it is necessary to show some concrete case to clarify the decision making process at Step 5. Then I shall examine again the case of Maddumabanda (N-8)'s transplanting as an example below.

Maddumabanda intended to transplant two acres of paddy land. At the first sub-step he estimates the first constraint, namely, the household's labor reciprocation capacity. In order to estimate it, three variables (i.e. H, T and D) in Equation II must be obtained in the context of Maddumabanda's transplanting. Here, H was one because only Maddumabanda's wife could reciprocate attam labor to the other households. In his household, three workers (i.e. Maddumabanda, his wife and one daughter) can transplant or assist the operation. But, his daughter was still too young to work as an adult female worker for this operation so that she could not reciprocate attam labor to the other households. In addition, Maddumabanda himself cannot do so either since the qualitative requirement of exchange labor is exclusively female labor in transplanting. Only his wife could then participate in attam labor exchange in this opera-

tion. Regarding T, Maddumabanda considered the cultivation arrangement in land preparation (including the first and second plowing, making bunds, harrowing and transplanting). In Nuwara Yaya, land preparation must be completed within one month. Furthermore, transplanting can be carried out only two or three weeks after the first plowing and also the preparation of nursery are completed. T (i.e. the approximate number of days in which most cultivators in the settlement complete their operations) was then roughly estimated by him at fifteen days. If Maddumabanda's wife wants to reciprocate the maximum amount of exchange labor with the other household (with the expectation of the same amount of return), she has to work in her own field only for one day with labor assistance from the other households and continue to work in the other household's fields as long as possible. Then D had to be one here. The household labor reciprocation capacity was finally estimated as follows:

The household labor reciprocation capacity
= H • (T - D)
= 1 •(15 - 1)
= 14•(Man-days)
(Here H : 1, T : 15 and D : 1)

Thus, the household's labor reciprocation capacity of Maddumabanda's household in transplanting was fourteen (Man-days). Here, the figure, fourteen means that his household cannot fix exchange labor for more than fourteen man-days due to his limited capacity of reciprocation. This is so even if he has many households which would be willing to exchange labor with him for more than fourteen man-days.

At the second sub-step, considering the first constraint restricting the upper limit of the availability of exchange labor, Maddumabanda started to visit the households in his household net-

work of labor exchange to estimate the availability of exchange labor to his transplanting. However, before describing Maddumabanda's exploration for exchange labor, I shall briefly locate Maddumabanda's household network of labor exchange in the wider context of Nuwara Yaya.

In Nuwara Yaya, there are strong linkages for labor exchange among large households which cultivate not less than three acres of paddy land and also have not less than four household workers on average. Such linkages of labor exchange have been formed so as to increase the capacity of their household networks without much costs of visiting many small households for organizing exchange labor. These large households normally fulfill most of the needs of exchange labor through such strong linkages of labor exchange, while they individually fulfill the rest of the needs with small households. The small households here imply the ones which cultivate less than three acres of paddy land and less than four household workers on average. While these small households fulfill some of the needs of exchange labor through labor exchange with one or two large households, they also have many linkages for labor exchange with the small households each other in the settlement. As a result, the household network of labor exchange of such a large household generally contains several large households and some small households. On the contrary, the network of such a small household normally contains only one or two large households and several small households.

Maddumabanda(N-8)'s household is one of such small households in Nuwara Yaya. His household network of labor exchange contains four small households (N.G. Heenbanda (N-6), L.G. Pina (N-7), A.G. Mudiyanse (N-35) and B.M. Gunaratne (N-37)) and two large households (B.W. Heenbanda (N-12) and H.M. Wijebanda (N-24))in Nuwara Yaya, and also two small households (P.G. Kiribanda and A.M. Kiribanda) in the neighboring settlement. Some details of each households are shown in Table 4-2. Maddumabanda normally exchanges the substantial amount of exchange labor with Mudiyanse, Tikiribanda and Kiribanda. Before transplanting, he began to visit them to fix labor exchange contracts. But, since he became late in doing so due to his absence from Nuwara Yaya for a few days, Mudiyanse had already arranged contracts with the other households in Mudiyanse's own network. Tikiribanda and Kiribanda also had fixed labor exchange arrangements with the other households. But, since both realized Maddumabanda's shortage of exchange labor and they were good friends of his, they offered one man-day of exchange labor each to his operation even if they did not need any more exchange labor for their own operations. These two cultivators were then not pragmatically but socially or morally motivated in their decision to exchange labor with Madduma-banda. In other words, they selected the fourth aspect of labor exchange (i.e. fulfilling social obligation of mutual aid) to offer him attam (II). Maddumabanda next considered Gunaratne and N.G. Heenban-da. But he did not visit Gunaratne since he knew that Gunaratne's household did not have any female workers available for labor exchange in transplanting. Furthermore, he did not visit N.G.Heenbanda

TABLE 4-2

MADDUMABANDA (N-8)'s HOUSEHOLD NETWORK OF LABOR EXCHANGE

	Caste	Cultivation area (acres)	Household Labor		The amount of labor which each household is willing to exchange with Maddumabanda in transplanting	The context in the decision maker of labor exchange with Maddumabanda in transplanting
			Male	Female		
N.G. Heenbanda (N-6)	Govigama	1.50	2	1	-	-
L.G. Pina (N-7)	Berawa	2.00	1	1	1	Pragmatic
B.W. Heenbanda (N-12)	Govigama	4.00	1	4	-	-
H.M. Wijebanda (N-24)	Govigama	4.00	2	3	5	Pragmatic
A.G. Mudiyanse (N-35)	Govigama	2.00	1	2	-	-
B.M. Gunaratne (N-37)	Govigama	2.00	1	0	-	-
P.G. Tikiribanda*	Govigama	2.00	1	2	1	Social
A.M. Kiribanda*	Govigama	2.00	1	3	1	Social

* N.S. implies the households in the neighboring settlement.

either. This is because he had known that N.G. Heenbanda had been going to employ broadcast sowing but not transplanting so that N.G. Heenbanda would not exchange labor on attam basis in Maddumabanda's transplanting this season. On the way, he happened to meet B.W. Heenbanda, one of the large households in his household network of labor exchange. But, unfortunately, B.W. Heenbanda had already fixed labor exchange arrangements with other large households on the same dates on which Maddumabanda also had planned to carry out transplanting. Then, he gave up the idea of labor exchange with B.W. Heenbanda. However, Wijebanda, the householder of another large household in his network proposed five man-days of exchange labor with Maddumabanda and he willingly accepted the request. Maddumabanda finally visited L.G. Pina who belongs to beravā caste. He normally visits L.G. Pina only when he is suffering from a shortage of exchange labor. This is because his household workers belonging to the govigama caste hesitate to eat lunch together with the low caste people at attam occasion. But, this time, he needed more exchange labor, and made the contract of one man-day of exchange labor with L.G. Pina.

Thus, Maddumabanda explored his household network for labor exchanges and assured eight man-days of exchange labor with the above four households. However, it is obvious that his exploration was rather unsuccessful. This is partly because Maddumabanda got late in competing with the other households for exchange labor, and partly because Maddumabanda's less capacity of the household labor did not attract the other households in his network of labor exchange. Furthermore, the qualitative requirements of exchange labor

in transplanting limited the capacity of Maddumabanda's household network of labor exchange. Since labor assistance in transplanting had to be reciprocated in labor assistance in transplanting but not in broadcast sowing, Maddumabanda could not exchange labor with N.G. Heenbanda who had selected broadcast sowing. In addition, as transplanting requires only female labor, he could not exchange labor assistance with Gunaratne whose household had no female labor. Altogether, then, these negative factors badly affected Maddumabanda's exploration for exchange labor.

Through the above exploration for exchange labor, Maddumabanda fixed eight man-days of exchange labor available for his transplanting. He then shifts to the final sub-step to impose this constraint on the ordered alternatives identified at Step 2 and drop unrealistic ones. Since those unrealistic alternatives must be the ones whose total amount of exchange labor are more than eight man-days, alternatives No. 1 to No. 10 in Table 4-1 can be said unrealistic ones. He then dropped these alternatives and ignored them. However, as we saw at Step 4, alternatives No. 1 and No. 2 and No. 3 were ordered first on the basis of the third aspect (i.e. fulfilling technical requirement of labor mobilization in transplanting). Maddumabanda consequently has to consider whether complementary labor mobilization should be arranged or not. This decision making process is to be examined at the next step.

Step 6 : Reaching the Final Choice and Going on to the Decision Making of Complementary Labor Mobilization

Step 6 is the final step in which the decision maker takes the final choice out of a small number of the alternatives, and if necessary proceeds to the complementary labor mobilization decision. Since the decision maker has already obtained a small number of the ordered alternatives which satisfy the constraints, the final choice can easily be done. But, as the final choice of exchange labor is being arrived at on the basis of the one particular selected aspect, there emerge the four types of process in which the final choice of exchange labor and complementary labor mobilization is completed. This divergence into the four types is derived from which aspect has been selected at Step 4 by the decision maker in relation to his context (either pragmatic or social). Here, these four types of the decision making process of labor exchange and complementary labor mobilization are called Type A, Type B, Type C and Type D, whose selected aspects are the first aspect (i.e. psychological encouragement), the second aspect (i.e. satisfaction of quick completion), the third aspect (i.e. fulfilling technical requirement of labor mobilization) and the fourth aspect (i.e. fulfilling social obligation of mutual aid), respectively. Then, let me begin by describing Type A below. (See Figure 4-1).

Type A is the decision making process of labor exchange and complementary labor mobilization in which psychological encouragement is selected as the aspect by which to order the alternatives. As we saw already, the more the number of helpers on attam basis are obtained in a given cultivation stage, the more psychological encouragement is increased. The alternative first ordered is here the one

FIGURE 4-1

THE FOUR TYPES OF THE DECISION MAKING PROCESS OF LABOR EXCHANGE AND COMPLEMENTARY LABOR MOBILIZATION

Type	The Selected Aspect	Final Choice of Labor Exchange Type of Exchange Labor	Complementary Labor Mobilization
A	Psychological encouragement	The alternative highest ordered which passes under the constraints (i.e. the availability of exchange labor). Attam (I)	Nikang help is mobilized, if necessary. But, wage labor is not employed
B	Satisfaction of quick completion	Same as above Attam (I)	Same as above
C	Fulfilling technical requirement of labor mobilization.	Same as above Attam (I)	Nikang help is mobilized, if necessary. If the requirement of labor mobilization is still not sufficient, a small amount of wage labor may be employed. This decision depends on the availability of cash for wage labor. If the requirement for labor mobilization is not met at this point, the operation will be cut back whether partly or fully.
D	Fulfilling social obligation of mutual aid.	The final choice which is obtained by the decision maker's considering the quantity of the excess household labor, the quantity of exchange labor requested by the co-villager and the social relation between the decision maker and the co-villager. Attam (II)	Neither nikang help nor wage labor is mobilized since the decision maker has more than enough household labor for the operation.

whose D is one, the alternative second ordered is the one whose D is two, and so on. Then, the final choice of labor exchange is the alternative highest ordered, which passes under the availability of exchange labor. However, since the aspect of psychological encouragement requires good company in labor exchange team, the availability of exchange labor seems to be lower than that in another selected aspect, at least, that in Type B. As a result, the total amount of exchange in practice seems to be lower in general. In Type A, the choice of labor exchange may be followed by some decision making of complementary labor mobilization if the decision maker feels the insufficiency of good company. But, such a decision includes mobilization of nikang help but not wage labor, since for peasant cultivators it is not worth employing wage labor for psychological encouragement at the expense of the wage.

Type B is the decision making process in which the aspect (i.e. satisfaction of quick completion) is selected as the most significant aspect by the decision maker. Type B is partly similar to Type A due to the similarity in the mode of ordering alternatives. Like Type A, higher degree of satisfaction of quick completion can be obtained quicker completion, that is shorter time duration of completion. The alternative first ordered is here the one whose D is one, the alternative second ordered is the one whose D is two, and so on. Then, the alternative highest ordered which passes under the constraints is the final choice of labor exchange. But there is a difference between Type A and Type B. In Type A, the availability of exchange labor is generally lower due to the requirement of good

company in practice, while such an intimate social relation is not specially required in Type B. As a result, the actual availability of exchange labor in Type B is higher than that in Type A so that the actual labor exchange size in Type B is also higher than in Type A. The decision making of complementary labor mobilization may also be followed in Type B if the decision maker feels the necessity. But, the complementary labor mobilization again includes only nikang help but not wage labor since, like in Type A, the cultivators do not feel like paying cash for psychological satisfaction of quick completion of the operation.

Type C is the decision making process in which the aspect (i.e. fulfilling technical requirement of labor mobilization) is selected as the greatest utility or subjective worth. Although there are two types of mode of ordering alternatives due to the difference in the nature of technical requirement, the alternative (or alternatives) first ordered is, in either case, the one whose D or M satisfies the technical requirement of labor mobilization at a given stage of cultivation. If the alternative (or alternatives) first ordered pass under the constraints, it is chosen for the final choice of labor exchange. However, if not, the alternative (or alternatives) second ordered is chosen and the decision making of complementary labor mobilization follows the final choice of labor exchange. Because of the higher utility or value of fulfilling technical requirement than those of the other aspects as discussed at Step 4, the complementary labor mobilization necessarily follows Type C. The decision maker first tries to organize as much nikang help as possible to fulfill the requirement. Then, if the requirement is still not fulfilled, he

may try to recruit a small number of wage laborers if he has some cash for it and he thinks it worth doing so. But, if he fails in organizing both nikang help and wage labor, then, he has to either proceed with the operation without fulfilling the requirement, or cut back the operation, for instance, from transplanting to broadcast sowing. In the latter case, cutting back the operation often works. This is because labor requirement per day per acre in broadcast sowing is approximately five (man-days/day • acre), while that in transplanting is around twenty two (man-days/day • acre). Thus, due to the higher significance of this aspect, complementary labor mobilization is sought for until the requirement is fulfilled. Otherwise, the proposed operation is cut back to another type of operation which does not require much labor mobilization. In these points, Type C differs from Type A and Type B.

Here, in order to clarify the decision process in Type C, I shall again examine the case of Maddumabanda (N-8)'s transplanting. We have so far examined his decision making process at Step 2, at Step 4 and at Step 5. At Step 2, the alternatives open to him was identified and shown in Table 4-1. As Step 4, the third aspect (i.e. fulfilling technical requirement of labor mobilization) was selected since transplanting (which he intended to employ for two acres of paddy land) was technically required to be completed within three days just after harrowing. Furthermore, on the basis of the aspect, the alternatives were ordered. As a result, alternatives No. 1, No. 2 and No. 3 were ordered first, while the others were ordered second. But, at Step 5, not only those alternative first ordered but also

most of the alternative second ordered (i.e. the alternative No. 4 to No. 10) could not pass under Maddumabanda's poor availability of exchange labor in this cultivation season. Then, Step 6 takes place here. Maddumabanda first tried to organize nikang help from his close friends in the neighboring settlements and could assure ten man-days of nikang help. But, even so, the total amount of labor force he could arrange did not satisfy any of the alternatives first ordered. Although, he had to arrange at least thirty one man-days of labor force to choose the alternative No. 3, he was assured of only eight man-days of exchange labor and ten man-days of nikang help. Then, Maddumabanda gave up the original plan of the operation and partly cut back it. In fact, just after harrowing, he completed one acre of paddy field with broadcast sowing with four wage laborers (Rs.25/laborer•day) and himself. Then, in the following two days he carried out transplanting in another one acre with eight man-days of exchange labor, ten man-days of nikang help and his household workers. By partly cutting back the operation, he could manage to carry out the operations without ignoring the technical requirement in transplanting (i.e. completing within three days after harrowing). Maddumabanda's decision making process of labor exchange and complementary labor mobilization was thus a typical case of Type C.

As we see from the above discussion, each of these three types of the decision process has its particular pattern according to the aspect selected by the decision maker in relation to the psychological or technical conditions of the work process. Due to the similarity of such conditions in a given cultivation stage among most

cultivators, I observed that they tend to follow one particular type of the decision making process at a given stage of cultivation. But this occurs only as long as the cultivators are in the pragmatic context or idiom in which they feel the necessity of labor exchange for pragmatic advantage rather than to express sociability with the particular members of the locality. Those who are in the social context or idiom (in which the cultivators give priority to social expression rather than pragmatic advantage) follow a different type of decision making regardless of the stage of cultivation. That is Type D.

In Type D, it is difficult to find a clear pattern in the decision making process among the cultivators since the mode of ordering alternatives greatly differs from one cultivator to another due to the different individual factors, already mentioned at Step 4. The detailed description of Type D then should be ethnographic and so is left for Chapter VII. But, it can at least be said that the decision makers in the social context or orientation have sufficient household labor for their operations so that they never consider any complementary labor mobilization.

The Summary of Analysis

In this chapter, I presented the model of the decision making process of labor exchange and complementary labor mobilization in agricultural processes of Madumana, Aliyawala and Nuwara Yaya. In the course of analysis, I identified several simplifying procedures in the decision making process. At Step 1, a large number of potential

alternatives were quickly or pre-attentively narrowed down to a small sub-set of feasible alternatives. At Step 4, one aspect out of the four aspects listed by the decision makers was selected by considering its utility or subjective worth. At Step 5, some of the ordered alternatives were cut off by the constraint (i.e. the availability of exchange labor). At Step 6, after the final choice of labor exchange was achieved, the decision regarding complementary labor mobilization is taken. These are the actual simplifying procedures which the decision makers generally follow in making decisions regarding labor exchange and complementary labor mobilization with their multiple aspects or utilities. In this Chapter, by identifying such simplifying procedures, I could operationalize assumptions regarding maximization or economizing behavior in a realistic manner and reconstruct the natural decision making process regarding labor exchange and complementary labor mobilization.

Based on the analyses in this Chapter, I shall now clarify the following two points, namely, how the decision maker decides to recruit the precise kind and quantity of labor assistance required for his agricultural operation in a given context; and what kinds of factors qualitatively and quantitatively affect the decision making process. These two points are clarified with some conceptualization of the decision making process below.

As we saw in detail, the actual decision making process concerning labor exchange and complementary labor mobilization is conditioned by various ecological, social and economic factors. The first significant factor is the preference for attam exchange

labor among most cultivators in Madumana, Aliyawala and Nuwara Yaya. This is due to the lower capacity of nikang help as well as the lack of money for wage labor. This factor makes the decision maker narrow down a large number of alternatives into a feasible sub-set.

The second factor is the individual household factor which is composed of such variables as S, K and H in Equation I. This factor determines the actual quantitative range of alternatives.

The third factor is the aspect selected with the greatest utility or subject worth. The aspect is selected by the decision maker's consideration of the psychological, technical or social context in which labor exchange will take place. This factor decides the mode of ordering alternatives and allows the decision maker to clearly conceptualize the ranking of alternatives. Here, we can conceptually call the alternative first ordered the "primary demand" of exchange labor.

The fourth factor is the availability of exchange labor to the decision maker. The actual level of this availability is determined by the capacity of the decision maker's household network of labor exchange and also by the tactical organization of exchange labor within the network. Further, the availability of exchange labor is limited within the household's labor reciprocation capacity. In addition, the availability of exchange labor and the household's labor reciprocation capacity are both affected by the qualitative requirement of exchange labor at a given cultivation stage. Since the availability of exchange labor is not infinite, the primary demand may excess the limit of the availability of exchange labor. This fourth

factor makes the decision maker check whether the primary demand is realistic or not. If not, the primary demand has to be cut back, and the decision maker is obliged to choose the next highest ordered alternative which can be satisfied with the availability of exchange labor, whether it matches the primary demand or not. As long as no incidental factors interfere with the decision making process and the actual organization of labor exchange, we can assume that the final choice regarding labor exchange is put into practice as the actual labor exchange.

After reaching the final choice of labor exchange, the decision maker sometimes goes on to make a decision concerning complementary labor mobilization, if necessary. This decision making is affected by the availability of nikang help and the availability of cash for wage labor. These are the fifth and sixth factors affecting the decision making process.

Thus, there are six factors which directly affect the whole decision making process of labor mobilization in agricultural processes. Furthermore, each factor is again affected by various ecological, social and economic factors. Let us here call the six factors directly affecting the decision process the "first affecting factors', and the other factors directly affecting these first affecting factors the "second affecting factors" respectively. The relation among these first and second affecting factors can be shown in Figure 4-2. Figure 4-2 sets out schematically the natural decision making process and the factors which influence it.

FIGURE 4-2

THE RELATIONSHIP AMONG THE FIRST AND SECOND AFFECTING FACTORS

IN THE DECISION MAKING PROCESS OF LABOR EXCHANGE AND

COMPLEMENTARY LABOR MOBILIZATION

Step Number	The decision making process	The first affecting factors	The second affecting factors
1	Narrowing down a large number of alternatives into a feasible sub-set.	The preference of exchange labor.	Less capacity of nikang help The lack of cash for wage labor.
2	Determining the actual range of alternatives.	The individual household factor (i.e. S. K and H in Equation I)	
3	Listing aspects		
4	Selection of the one aspect and ordering alternatives on it.	The decision maker's context in which labor exchange is mobilized.	Psychological or technical conditions of work process in the field, or the socio-economic conditions of the decision maker.
5	Dropping unrealistic alternatives.	The availability of exchange labor to the decision maker.	The household's labor reciprocation capacity, and the capacity of the network of labor exchange and the tactical organization of exchange labor within the network, and the qualitative requirement of exchange labor at a given stage of cultivation.
6	The final choice of exchange labor.		
7	The complementary labor mobilization.	The availability of nikang help and the availability of cash for wage labor.	

I have so far summarized the decision making process of labor exchange and complementary labor mobilization. In the final part of this Section, I shall emphasize the distinct nature of reciprocal labor exchange in brief. From the previous discussion in this Chapter, it is evident that labor exchange is primarily organized to maximize practical benefit (especially in Type, A, B and C but not Type D as shown in Figure 4-1). At Step 4, the decision maker estimates the primary demand of exchange labor with the expectation of the highest utility or benefit from the practice of labor exchange. But, estimating the primary demand is merely an initial part of the maximization process in labor exchange. This is because, to realize the primary demand in practice, it is necessary to secure sufficient exchange labor through competitive exploration for exchange labor. Such exploration for exchange labor is the crucial part of the maximization process in labor exchange. As discussed earlier, the decision maker has two strategies to secure the availability of exchange labor, namely, forming the large network of labor exchange in the long run and the quick and tactical organization of exchange labor within the network of labor exchange in the short run. In this sense the result of exploration for exchange labor largely influences the success of the maximization process in labor exchange. This organizational aspect is a significant character of labor exchange discussed in the following Chapters.

This Chapter presented a model of the decision making process concerning labor exchange and complementary labor mobilization in the three agrarian settlements. However, it was shown without speci-

fying much concrete contexts or settings such as the particular cultivation stages and the decision maker's socioeconomic situation. In the following Chapters, I further discuss the actual decision making process in various concrete settings. In Chapter V, I describe the decision making process, especially the pattern of the selection of the aspect according to each cultivation stage of paddy and chena cultivation. Chapter V provides especially detailed accounts of how the decision maker estimates the primary demand in each stage of the cultivation, although it also presents the qualitative requirement of exchange labor in each stage of the cultivation. These accounts are significant when we analyze the various cases of exploration for exchange labor in Chapter VII. This is because the practice of labor exchange never takes place without the existence of the demand for practical labor mobilization. Unlike a gift which is usually initiated by the giver to express social and cultural messages irrespective of the receiver's practical demand for it, labor exchange is initiated by the receiver or host to meet his practical labor demand. In this sense, without grasping the demand for exchange labor in quality and quantity, it would be difficult to analyze the cultivator's exploration for exchange labor in its intensity and competitiveness. I shall therefore discuss the demand for exchange labor in Chapter V and, after examining the generosity and tolerance of imbalance in labor co-operation in Chapter VI, go on to analyze the cases of exploration for exchange labor in Chapter VII.

CHAPTER V

ECOLOGICAL AND AGRICULTURAL CONDITIONS AFFECTING THE DECISION MAKING PROCESS OF LABOR EXCHANGE AND COMPLEMENTARY LABOR MOBILIZATION

This Chapter deals with how ecological and agricultural conditions in both paddy and chena cultivation affect the decision making process. In the previous Chapter, we saw that ecological and agricultural factors indirectly affect the decision making process at two different steps, namely at Step 4 and Step 5. (See Figure 4-2 in Chapter IV). While ecological and agricultural conditions (specifically, the psychological and technological conditions of work in the fields) largely affect the selection of particular aspect of labor exchange at Step 4, such conditions also affect the qualitative requirement of exchange labor. Such conditions and requirement may in turn affect the two constraints (i.e. the household's labor reciprocation capacity and the availability of exchange labor to the decision maker) in the decision making process. In other words, these ecological and agricultural conditions affect both ways in which the primary demand for exchange labor is perceived, and also the actual supply of exchange labor is realized in a given context. Since these ecological and agricultural conditions considerably differ from paddy cultivation to chena cultivation, and also differ from one stage to another of each cultivation process, understanding these conditions, as I mentioned in the final part of the last Chapter,

helps us to analyze actual patterns of decision making with regard to labor exchange and complementary labor mobilization in various contexts.

In this Chapter, I shall describe paddy and chena cultivation process to clarify at each stage of cultivation (a) how cultivators select the particular aspect of labor exchange with the greatest utility or value, and (b) what kinds of qualitative requirement of exchange labor are emphasized by cultivators. This Chapter is not intended to provide much conclusive discussion on labor exchange practices. Rather, it presents ecological and agricultural backgrounds of various types of actual labor exchange practices which are to be analyzed in relation to social factors in the following Chapters.

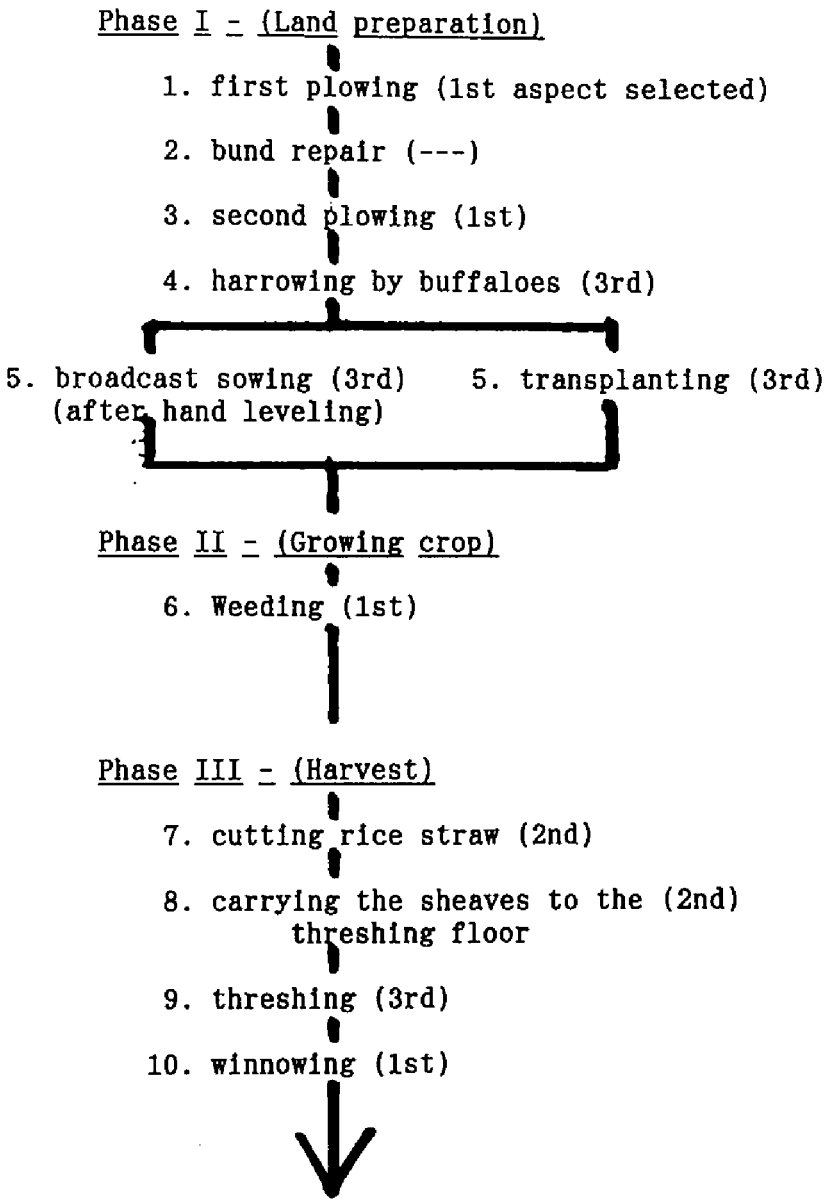
Ecological and Agricultural Conditions Affecting the Decision Making Process of Labor Exchange in Paddy Cultivation

The paddy cultivation process is composed of several different stages of operation. There are altogether ten stages in the three distinct phases of whole cultivation process (i.e. land preparation, growing crop and harvest) although there are small differences between the cultivation process where the broadcast sowing method is used, and the one where the transplanting method is employed. (See Figure 5-1).

Since Madumana, Aliyawala and Nuwara Yaya are located in either the Intermediate Zone or the Dry Zone of Sri Lanka, the beginning of their cultivation schedule is largely determined by the

Figure 5-1

PADDY CULTIVATION PROCESS AND ASPECTS SELECTED



collective management of water supply. For the efficient use of scarce water, first plowing in each settlement must start after the particular date which the Vel Vidāne informs to the cultivators, and all stages in Phase I also have to be completed within a specific period (15 days in Madumana, and 30 days in Aliyawala and Nuwara Yaya on average). In this phase, every cultivator is willing to start first plowing as soon as possible after the date chosen by the Vel Vidāne, because no one likes to get behind in his operations. Delay in cultivation may result in unsuccessful land preparation in the event of unexpected water shortage. Further, if the cultivator cannot complete this phase by the dead-line already fixed, he may not, according to the irrigation rule, proceed further with his operations and must give up cultivation entirely until the next season. Even if the cultivator manages to complete Phase I by the dead-line, he may have to give up more preferable transplanting method and employ less efficient broadcast sowing method due to the shortage of time for transplanting. In addition, delay in this phase may result in delay in Phase III (i.e. harvest). It implies that after the majority of the paddy plots in the settlement field are harvested, most of birds and other pests come to damage the plots left to be harvested. All cultivators are hence in a hurry to start work in order to avoid such troubles. Although all cultivators may not be able to begin their land preparation at the same time due to uneven distribution of buffaloes for plowing, every cultivator experiences a period of some anxiety in keeping to the time limit and securing water, buffaloes and human labor. In this phase, all operations except transplanting are carried out by male workers. Transplanting

is normally done by female workers in this region, although some male household members may assist them in certain occasions.

In the stage of first plowing, a large labor mobilization is not required since quick work achieved by such a large labor mobilization does not lead to any tangible advantages. Rather, quick completion tends to result in unsatisfactory work of plowing and insufficient killing of weeds. The second aspect is hence not considered here. Furthermore, labor mobilization on a large scale is actually impossible in this stage since all cultivators wish to start first plowing as soon as possible. The third aspect (i.e. fulfilling the technical requirements of labor mobilization) is also eliminated by the cultivators because this stage does not require any particular speed or division of labor in the operation. However, since the plowing is one of the hardest tasks in the paddy cultivation, most cultivators prefer working together with one or two skilled workers rather than working alone under the strong heat of the sun. It means that the first aspect (psychological encouragement) is selected here. As described in Chapter IV, psychological encouragement is achieved through forming collective responsibility of labor exchange in three different ways (i.e. securing labor assistance in times of crisis, forcing cultivators to work according to collective schedule of operation, and working together with joking and gossiping). Since plowing is one of the hardest operation and delay of the operation results in bad effects to the cultivation, most cultivators thus tend to select the first aspect of labor exchange so as to get

psychological encouragement.

Bund repair is not very hard work. It is either carried out by an elder household member along with first plowing by the younger members, or followed after first plowing if there is no extra labor force in the household. There is enough time to complete this stage before second plowing starts, so that this stage does not technically require any labor mobilization. Normally, labor exchange in plowing often includes bund repair along with the work, so that labor exchange in bund repair naturally takes place even if the host cultivator does not consider the advantage of labor exchange for bund repair. No cultivator hence specially select any specific aspect of labor exchange in this stage.

Second plowing follows bund repair. Since the technical and psychological characters of second plowing are quite similar to those of first plowing, the selection of the relevant aspect for second plowing is the same as in first plowing. Most cultivators select the first aspect of labor exchange and the type of exchange labor preferred here is skilled labor.

After second plowing, paddy plot is harrowed by buffaloes. This operation must be completed quickly. This is because the timing of harrowing is technically related to the timing of the next stage, that is, either broadcast sowing or transplanting. If broadcast sowing method is planned to be employed, harrowing is required quick completion within one day. This is because the following stage (i.e. broadcast sowing) is technically required to be completed within one

or two days after harrowing. The surface of soil otherwise hardens so that paddy seeds cannot properly be attached to the soil. If the transplanting method is employed, the time limit in completion is slightly eased. Transplanting needs to be completed within two or three days after harrowing, so that harrowing followed by transplanting must be done within one or two days as long as transplanting can be completed within the above time duration. For the above reasons, most cultivators select the third aspect (i.e. fulfilling technical requirement of labor mobilization) in harrowing by buffaloes. This operation requires the workers with some skill in controlling buffaloes in mud paddy field, so that the partners recruited here must have such a skill.

Broadcast sowing is, as I mentioned before, technically required to be completed within one or two days. This is a very important requirement in order to make seed paddy properly attached to the surface of the soil and prevented from being washed away by rain or irrigation water. When the host cultivator cannot organize exchange labor and nikang help sufficiently, many cultivators consequently consider to employ some amount of wage labor for fulfilling the requirement. In any case, for broadcast sowing, most cultivators select the third aspect of labor exchange. In this stage, while hand leveling can be done by any worker, broadcasting seed paddy requires elder workers with much experience of proper operation. At least, one or two experienced workers must be in a labor exchange team.

Similarly, transplanting is technically required to be completed

within two or three days before the soil gets hardened. Otherwise, it would be too hard for the workers to transplant easily. Since this requirement is very important, it must be fulfilled by maximum organization of not only exchange labor but nikang help and, if necessary, wage labor. However, transplanting is not very difficult for even less skilled female workers to carry out, so that exchange labor required here is not necessarily with much experience.

During Phase II, except water management, there is only one important operation, namely, weeding. Transplanting method is efficient in protecting plots from weeds, so that weeding is not done in plots prepared by this method. But, broadcast sowing is not so efficient. Then, weeding is generally required and is carried out if labor is available. In fact, weeding is very common to those who employ broadcast sowing in Nuwara Yaya. But, it is not performed in Madumana and Aliyawala, although spraying weedicide is done by some cultivators in these settlements. Most cultivators in Madumana and Aliyawala believe that weeding does not much affect the yields of paddy despite back-breaking work. It seems to me that the different attitudes towards weeding between these two settlements and Nuwara Yaya is derived from the different knowledge and expectations with regard to weeding in terms of economic returns to labor.

In any case, most cultivators in Nuwara Yaya perform weeding if necessary and if labor is available. This operation is carried out by female workers. Since weeding is normally done between three weeks and four weeks after broadcast sowing has been completed, the cultivators have enough time to weed the plot.

Then, it does not technically require quick operation like broadcast sowing and transplanting. Further, weeding is limitless work if the cultivators intend to do it perfectly. Each cultivator carries out till he or she feels sufficient. In other words, as the work of weeding cannot be completed perfectly, quick completion in this operation with a large number of exchange labor scarcely gives much satisfaction. Most cultivators then do not consider the second and third aspects of labor exchange here. But, weeding is back-breaking work, and working alone in this operation is hard to perform. The cultivators, especially female workers, consequently prefer to select the first aspect of labor exchange so as to obtain psychological encouragement. This operation does not require any skilled labor.

Phase III includes cutting rice straw, carrying sheaves to threshing floor, threshing and winnowing. In this phase, there is a clear sexual division of labor because of religious symbolism on paddy cultivation. Cutting rice straw is normally done by male workers, although female workers may participate in the case of labor shortage. Carrying sheaves to threshing floor is a female work with a few male assistants, one who gathers sheaves and put them on the head of female carriers in the field, and the others who make paddy stacks at threshing floor. Threshing is carried out exclusively by male workers using buffaloes since it is considered that threshing should be protected from symbolic pollution (kili) possibly brought by women. It is carried out at night so as to avoid fatigue of both workers and buffaloes. Several households use tractors for threshing instead of buffaloes in Nuwara Yaya mainly due to the lack of buffaloes. Once rice straw is threshed, the cultivators no longer

consider the pollution by women as important. Then, female workers come and carry out winnowing in the threshing floor.

In this phase, all cultivators are very busy. But, unlike Phase I, in which the cultivators are anxious to keep a fixed time-table of operations, they are not so worried in this phase. Because this phase does not require much technical attention to the operations. Further, each individual schedule of harvest does not always overlap since reaping may be spread over a few weeks in the settlement fields even if sowing or transplanting has been completed at almost the same time. This is due to differences in water management, in fertilizer use and other factors of the cultivation.

Cutting rice straw does not technically require quick work, since the suitable period of time for this operation is more than ten days. As long as this time limit is kept, a cultivator can cut rice straw leisurely. However, unlike weeding, since the completion of cutting rice straw is clearly visible and the completion implies the end of paddy cultivation, quick work tends to result in a high satisfaction. Most cultivators consequently select the second aspect of labor exchange (i.e. satisfaction of quick completion). They normally mobilize exchange labor to the maximum capacity here, although they may not hire wage labor for such psychological satisfaction.

After cutting rice straw, it is kept to be dried up under the sunshine for at least one or two days if it does not seem likely to rain. Carrying the sheaves then starts. This operation does not require quick work unless it seems likely to rain. But, like cutting

rice straw, quick completion brings about much satisfaction. Furthermore, some cultivators, who are afraid of the damages caused by rain or buffaloes, are in a hurry to complete this operation as quickly as possible. Most cultivators consequently select the second aspect of labor exchange so as to enjoy the satisfaction of quick completion in this stage. This operation also does not require any skilled labor.

In the stage of threshing, the stack from half an acre of paddy field is normally threshed by buffaloes or a tractor in one night. This work does not require quick completion since these stacks can be kept for a long time without much damage from rain. However, this work requires a particular division of labor. It needs at least three or four male workers, one for handling the buffaloes, the others for mixing rice straw in the floor. At least three or four workers are then technically required for this operation. Several cultivators in Nuwara Yaya hire tractors for threshing. By using a tractor, they can remove paddy from the sheaves within half an hour, while it takes a few hours to do the same job using buffaloes. However, both methods require another few hours to separate paddy from the sheaves by using rake. In this sense, most cultivators, whether employing buffaloes or a tractor, select the third aspect of labor exchange so as to fulfill the technical requirement of labor mobilization, that is, the division of labor at the threshing floor. Since this operation does not require any skilled labor, any male worker can join exchange labor teams.

The morning after a stack of rice straw has been threshed,

winnowing is carried out by female workers. This work must be completed within one day since paddy threshed cannot be left there without any protection from birds, other predators and even thefts. But, since this work does not require much labor input per paddy stack, the cultivators select neither the second nor third aspect but the first aspect (i.e. psychological encouragement) of labor exchange, as long as the operation can be completed within one day. In the actual context, most households complete this operation only with household female members or with one or two attam helpers. This operation also does not require any skilled labor.

I have so far described the selection of the aspect of labor exchange with the greatest utility or value (summarized in Figure 5-1)[1] and also the qualitative requirement of exchange labor at each stage of the cultivation. In addition to the above description, I shall mention here to a general condition underlying the decision making process, especially at Phase I. That is the irrigation system in the paddy cultivation. In the region where the three agrarian settlements in the study are located, the irrigation system secures water for the paddy cultivation. Although land preparation must be

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1. As I showed in Chapter IV, the selection of the first aspect largely determines the consequent decision making process in the form of Type A, the selection of the second aspect in the form of Type B and the selection of the third aspect in the form of Type C, respectively. Except at the stage of bund repair, then, either Type A, B or C takes place at any other stage of the paddy cultivation. Here, Type D (i.e. the decision making process in which attam (II) is mobilized) can possibly take place at any stage of the paddy cultivation since the decision making process in the form of Type D has little to do with the ecological and agricultural conditions discussed in this section. However, as attam (II) is rather rarely mobilized in Madumana, Aliyawala and Nuwara Yaya (see Table 6-2), it can be said that Type D is not statistically the dominant pattern of the decision making process in these agrarian settlements.

completed within a fixed time period for efficient use of scarce water, the cultivators are at the same time allowed to arrange an optimum size of labor exchange and complementary labor mobilization in order to complete each cultivator's operations in a few days. Then, as long as the cultivators keep the time limit of completing land preparation, they can enjoy the various positive aspects (not only the third but also the first and second aspect) of labor exchange as I described in this Chapter. In other words, securing water by irrigation systems makes it possible for cultivators to mobilize their labor force so as to enjoy various aspects of labor mobilization.

In contrast to such irrigated paddy cultivation, chena cultivation is not supported with any water securing system in Sinhalese peasant agriculture. It directly depends on uncertain rainfall in Maha season, so that the cultivators are not assured of water. Because of uncertainty over water, they do not complete sowing of seeds in a few days even if it can be done by labor mobilization. What they do is to sow seeds slowly in a few times at the long intervals so as to minimize the risk of severe damage of crops due to temporary drought. In this case, the cultivators opt to minimizing the risk at the expense of various utilities derived from labor exchange. Although the ecological and agricultural character of chena cultivation does not always explain the various patterns of labor exchange practices, it characteristically shows the major difference of the labor organization pattern between paddy and chena cultivation in this region. In the next section, I shall discuss the

process of chena cultivation to describe the selection of the aspect of labor exchange and also the qualitative requirement of exchange labor at each stage of the cultivation.

Ecological and Agricultural Conditions Affecting to the Decision Making Process of Labor Exchange in Chena Cultivation

The chena cultivation process in Madumana[1] is composed of ten main stages of operation. Figure 5-2 shows these successive stages.

In July or early August (i.e. middle of the dry season), the cultivators begin to fell trees and scrub in their plots at a chena site (yaya). Since they have enough time to complete this operation before the coming rainy season in October, it does not technically require any specific speed. Furthermore, it does not require any type of division of labor. They then do not consider the third aspect of labor exchange (i.e. fulfilling technical requirement of labor mobilization). They do not consider the second aspect (i.e. satisfaction of quick completion) either. This is because quick completion of felling the forest could require a large number of exchange labor including not only skilled workers but less skilled and lazy workers. In this stage, felling trees and scrub must be done well, otherwise the chena plot could not be burned effectively. Because of the above disadvantage the second aspect is not selected here. However, felling the forest is the hardest and most dangerous operation in the chena cultivation. During this stage of operation, all cultivators are exposed to hardship from thorny scrub, poisonous snakes and

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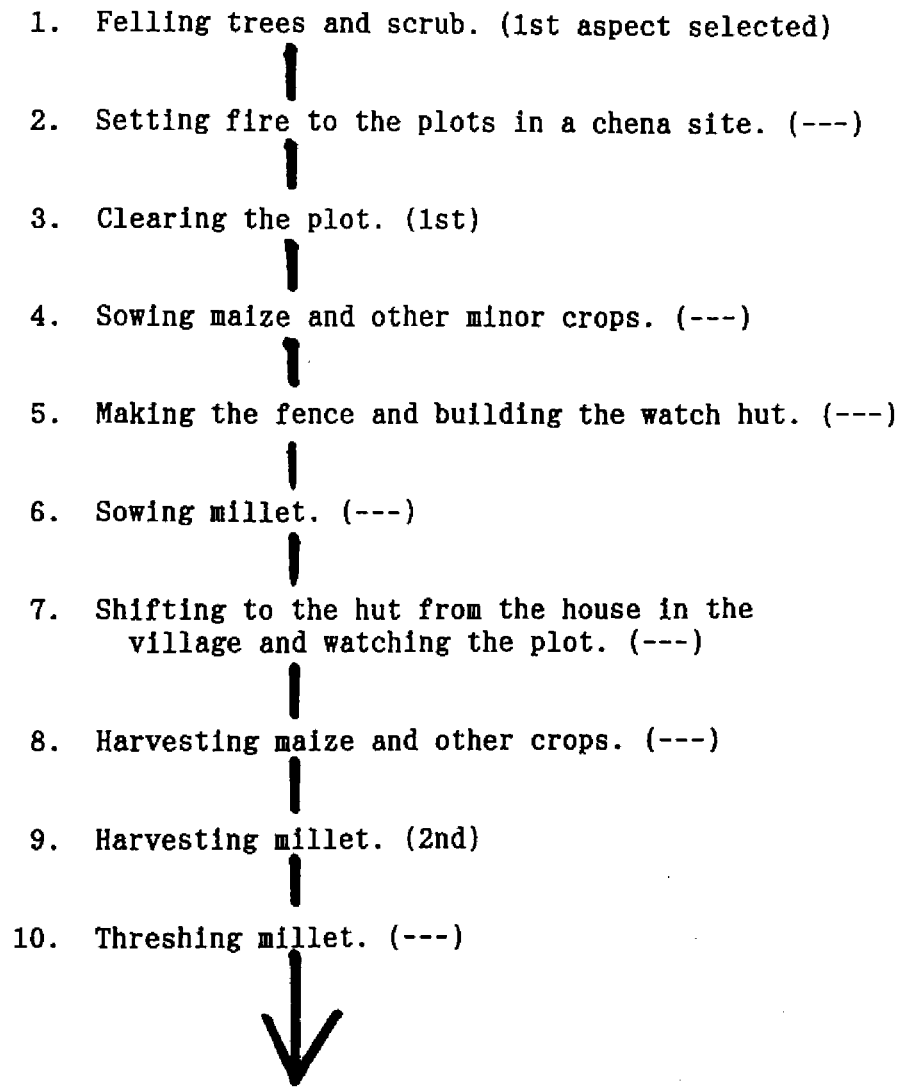
1.See Adachi (1982, 1984, 1987) for the details.

Figure 5-2

CHENA CULTIVATION PROCESS AND ASPECTS SELECTED



insects, so that it is impossible for a single worker to carry outthe operation alone. Most cultivators want to organize some sort of labor exchange which makes it possible to promote safety in the dangerous working conditions of the forest and assistance at times of crisis and also to reduce difficulty and drudgery of this operation. They then select the first aspect of labor exchange so as to enjoy psychological encouragement.

After felling the forest, the cultivators leave the plots under the strong sun in the dry season so as to dry them up well. In a fine day of September, all members of a single chena site come together and set fire to the site at various points from the windward. Thus, this stage of setting fire does not include any labor exchange. It takes one or two days for the fire to cease naturally. Then, clearing the chena plot begins.

Normally, a well burned chena plot can be cleared easily by the husband and wife within a week. They collect some trees and branches, which remain unburned, in a few places and set fire to them again. Some large trees remaining in the plot are collected to use for making the fence and building the watch hut (pala) at a latter stage. But, it takes much more time and labor for the plots not well burned to be cleared. In many cases, those cultivators who were unsuccessful in setting fire to their plots, cut back the size of the plot or even give up the whole chena cultivation due to disappointment and difficulty in clearing the plot again. Such difficulty in setting fire to the plot is derived from the fact that, once the plot is set on fire, most of the dried leaves and branches of

trees and scrubs are burnt so that it is obviously difficult for the cultivators to set fire again to the remaining trees and scrubs without such dried leaves. In any case, this operation normally requires neither skilled workers nor particular speed of the operation nor division of labor. Most of the household members including small children and elders can carry out this operation according to their work capacities. Only those plot holders who cultivate alone consider labor exchange. Since there is no technical requirement of labor mobilization in this stage, they do not select the third aspect of labor exchange. Furthermore, they do not consider the second aspect of labor exchange (i.e. satisfaction of quick completion) either. This is because there is the difficulty in recruiting a large number of persons for exchange labor at this stage. This difficulty is mainly derived from the large difference of labor intensity required at various plots. Some plots were well burned so that the task of clearing such plots is relatively easier than those plots which were not well burned. Some plot holders whose setting fire was successful do not like to join an exchange labor team with the others whose plots were not well burned. Thus, due to such a difference of labor intensity among plots, it becomes difficult to recruit a large number of exchange labor in this stage. As a result, plot holders who want to organize labor exchange select the first aspect of labor exchange only to form a small labor exchange team for psychological encouragement.

After clearing the plots, all cultivators wait for the first heavy rain at the beginning of Maha season. After the first rain,

every cultivator rushes to each plot to sow maize and other minor crops such as pumpkin, mustard, beans and so on. But, they do not complete sowing seeds at once. On the contrary, they slowly carry out this task, repeated three or four times at seven or ten days intervals in order to minimize the effect of sudden drought on the crops. Sowing seeds slowly, they can be assured of at least some of the harvest even if it does not rain regularly. As a result, sowing seeds at each time requires a small amount of labor input. Furthermore, this task does not require much skill. It can hence easily be carried out by one or two household members in a day unless the operation becomes delayed, so that labor exchange is usually not considered.

In the middle of October, after completing sowing of maize and other crops, the cultivators start making a fence around the site. Each plot holder individually makes a portion of a fence in front of his own plot, although it must be connected to those of his adjacent plot holders. Furthermore, each cultivator builds each individual watch hut in the middle of his plot. These operations are carried out by each household member when he has free time, so that they do not consider any labor exchange here.

In October, before or after making the fence, they carry out broadcasting of millet (kurakkan). It is also carried out slowly, repeated three or four times at intervals of several days in order to minimize the risk of temporary drought. This operation is normally carried out by male workers. Since it does not require much labor input in one time, and it is not a hard task, they do not

consider labor exchange here either.

In November, most of the households in Madumana shift to their own watch huts in the chena plots, taking even hens and dogs, and stay there till all the work of chena cultivation is completed the following March. During their stay in the huts, they harvest maize and other crops when they need to eat or have time to store them. Since harvesting maize and other crops except millet do not require much labor input, there is no need to organize any labor exchange.

In January, male workers prepare to start paddy cultivation in Maha season in the village paddy field. They go back to the village for land preparation in the morning and return in the evening to their watch huts and keep watch of their plot at night. During the day, the wife and children watch the plots to prevent from predators. Since each plot holder watches his own plot by himself, labor exchange does not take place in this stage.

In February or early March, they start harvesting millet. This operation is carried out by female workers. Since sowing millet was done in three or four times at some intervals, harvesting it is also carried out three or four times. Each occasion of harvest consequently does not require much labor input. But, since this operation is the ending of chena cultivation, most female cultivators consider using labor exchange in order to enjoy satisfaction of quick completion (i.e. the second aspect of labor exchange). Unlike clearing the plot, there is no big difference of labor requirements in this stage among the cultivators, so that most female workers are willing to join in labor exchange teams. Furthermore, even if they

primarily select the second aspect of labor exchange, they also obtain the first aspect of labor exchange (i.e. psychological encouragement) through gossiping and singing "Kurakkan Kavi"(verses of millet) along with the operation.

After completing the harvest of millet in the plot, it is brought to the threshing floor adjacent to the hut and threshed by hand with the wooden bar (rambuk gaha). Surprisingly, unlike the paddy threshing floor, they do not care about symbolic pollution (kili) brought by women to the millet threshing floor. Since all members of the household participate in the work, they do not consider any labor exchange here. After completing this operation, the whole chena cultivation is over and they leave the hut for the house in the village with a variety of harvests.

In this section, I have described the selection of the relevant aspect of labor exchange with the greatest utility or value (summarized in Figure 5-2)[1] and also the qualitative requirement of exchange labor at ten stages of the chena cultivation in Madumana. Taking into account ecological and agricultural conditions, especially uncertain rainfall, I thus described that the cultivators do not

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1.As I discussed in Chapter IV, the selection of an aspect out of the first and the second aspect largely determines the consequent decision making process in the form of Type A or Type B. either Type A or Type B then takes place at the three stages. Since the third aspect of labor exchange is not selected at any stage of chena cultivation, Type C does not take place here. Further, although Type D can possibly take place irrespective of any ecological and agricultural conditions, attam (II) is not actually mobilized in the chena cultivation in Madumana (see Table 6-2). In other words, the decision making process in the form of Type D scarcely takes place in the chena cultivation in Madumana.

consider any aspect of labor exchange except only at the three stages of the cultivation[1].

In this Chapter, I have described various ecological and agricultural conditions affecting the decision making process of labor exchange and complementary labor mobilization in various stages of the paddy and chena cultivation. However, it is obvious that the decision making process concerning labor exchange is affected not only by the ecological and agricultural conditions of the work process but by various social settings where the decision maker is situated. Together with the notions about the ecological and agricultural conditions discussed in this Chapter, I shall analyze in the next two Chapters the decision making process of labor exchange and complementary labor mobilization (especially Step 5 and 6) in relation to social factors in Madumana, Aliyawala and Nuwara Yaya.

1.Although I have not mentioned this point before, there is another significant condition affecting the availability of exchange labor, namely particular dispersion of chena sites. Since there is one to two miles distance among the five chena sites in Madumana, it is not very easy for the villagers to visit the other chena sites through the forest. It is in fact always troublesome to organize labor mobilization on a large scale. It means that the spatial dispersion of chena sites generally reduces one of the constraints, the availability of exchange labor to the decision maker. Such a dispersion strongly affects the availability of nikang help (especially nikang (I)) in chena cultivation, too.

CHAPTER VI

THE DEGREE OF GENEROSITY AND TOLERANCE OF IMBALANCE IN LABOR CO-OPERATION IN THE THREE AGRARIAN SETTLEMENTS

The last Chapter dealt with the selection of the aspect of labor exchange to grasp how the decision maker estimates the primary demand for exchange labor in various ecological and agricultural contexts. However, as I pointed out in Chapter IV, the estimation of the demand in exchange labor is merely an initial part of the decision making process of labor exchange. Since the primary demand in the decision maker's estimation must be realized only through successful exploration for exchange labor, the crucial part of labor exchange as a maximization process is no doubt exploration for exchange labor to secure the sufficient availability of exchange labor. But, before proceeding to analyze this, we have to understand another significant dimension of the decision making process, namely the generosity and tolerance of imbalance in labor co-operation. As showed in Chapter III, attam (I) is a form of labor co-operation motivated by the cultivator's instrumental interests in labor mobilization. On the contrary, attam (II), nikang (I) and nikang (II) are the forms of labor co-operation motivated by the cultivator's social interests in labor assistance to the fellow cultivators. To analyze the decision making process of labor exchange and complementary labor mobilization, it is then important to understand in what condi-

tions the cultivator generously helps his fellow cultivators with a higher tolerance of imbalance and in what conditions he does not do so. Concerning labor exchange, the degree of generosity and tolerance of imbalance in labor exchange affects the household's labor reciprocation capacity at Step 5. (See Chapter IV). In addition, behind such a quantitative effect to the decision making process, it influences the decision maker's choice of his partners for labor co-operation. For instance, if the decision maker can expect his fellow cultivator to offer more labor assistance to him than he offers to his fellow cultivator, the decision maker will choose this fellow cultivator as a better partner for labor co-operation. Consequently, the degree of generosity and tolerance of imbalance influences the formation of the network as well as the organization of exchange labor within the network. Before analyzing the formation of the network and the organization of exchange labor in Chapter VII, I shall examine the degree of generosity and tolerance of imbalance in labor co-operation in the context of Madumana, Aliyawala and Nuwara Yaya.

In this Chapter, I am especially concerned with the context in which the cultivator generously offers labor assistance to others. Presenting statistical data on the patterns of labor use and labor co-operation in Madumana, Aliyawala and Nuwara Yaya, I shall discuss the above point.

In addition, the analysis presented here has an empirical significance in the studies of peasant economic behavior. In the studies of the peasants in the South and South-East Asia, there have

been a debate with regard to whether the peasants are "moralistic" in sharing food, labor and work with their fellow villagers (Geertz 1963; Scott 1976) or "rational" in maximizing their own gains (Popkin 1979). But, this argument seems ideal typical but not empirical (Alexander and Alexander 1982 : 597-599). None of the proponents of these two arguments have so far provided any empirical analysis supporting either side. This Chapter will provide an empirical analysis on peasant economic behavior to find an alternative picture in the context of Sinhalese agrarian settlements. It will in turn help to elaborate my arguments presented in this thesis.

The analysis presented here is not based on a rigorous application of the natural decision making approach. Rather, it is based on the statistical analysis and ethnographic interpretation of the cultivators' behavior in labor co-operation in the three agrarian settlements. Due to the character of the statistical analysis, various factors such as the individual household factor, kinship and friendship relation are neglected. But still, it provides the general pattern of the generosity and tolerance of imbalance in actual labor co-operation in four cultivation processes (i.e. the paddy cultivation of Madumana, Aliyawala and Nuwara Yaya, and also the chena cultivation of Madumana).

Statistical Overviews of Labor Use and Labor Co-operation In the three Agrarian Settlements

This section provides some statistical data of labor use and labor co-operation in Madumana, Aliyawala and Nuwara Yaya. Here, the following data are analyzed: (1) data on household labor use to

clarify the degree of involvement in agricultural work in these settlements; (2) the ratio of various labor forms in the total labor input figure to see the pattern of labor co-operation and the degree of generosity in labor co-operation in each settlement; and (3) balancing of attam labor exchange in order to clarify the degree of tolerance of imbalance in each settlement. These data show certain distinct features of labor use and labor co-operation in each settlement. The data for each settlement are largely derived from the particular settings of the cultivation process. After analyzing these statistical figures, I shall then discuss the reasons for such distinct tendencies in terms of work conditions of each settlement in the next section.

Household Labor Use Figures in the Three Agrarian Settlements

In the settlements, the household members work not only in their own field but also the others' fields as the result of labor co-operation. Table 6-1 shows data on household labor use for its own operation and for the others' operations. As Table 6-1 shows, while cultivators of Madumana spend far more household labor in their own fields than in the others' fields during the chena cultivation, those cultivators of Madumana, Aliyawala and Nuwara Yaya, during paddy cultivation, devote as much household labor in their own fields as they do to others' fields through labor co-operation. This difference in household labor use figures between paddy and chena cultivation is largely due to the different requirements of labor mobili-

TABLE 6-1

HOUSEHOLD LABOR USE FIGURES IN THE THREE SETTLEMENTS

(MAHA SEASON IN 1981)

	Own household operation	The other households' operation (On attam)	(On nikang)	(On kaiya)	Total household labor output
Madumana (Paddy)	28.3	(9.4)	21.6 (12.2)	(--)	49.9
Madumana (Chena)	62.1	(27.2)	36.0 (8.3)	(0.5)	98.1
Aliyawala (Paddy)	39.7	(22.5)	34.3 (11.8)	(--)	74.0
Nuwara Yaya (Paddy)	50.0	(57.8)	65.2 (6.6)	(0.8)	115.2

Note: All the figures shown in the table are man-days per household. Average acreages of operated paddy or chena land are 0.83 (acreage / household) in paddy and 2.25 in chena in Madumana, 1.57 in Aliyawala and 2.63 in Nuwara Yaya.

zation. (See Chapter V).

Further, according to Table 6-1, it can be roughly seen by the data on the total household labor output to what extent the household members are occupied with agricultural work both in their own field and in the others' fields. Since the average number of the household members is almost equal in these three settlements (see Table 2-10 in Chapter II), the total household labor output can be, although very crude, a criterion of the degree of being busy or involved in agricultural work in a season. From the above criterion, it is evident that the Madumana's cultivators are more involved in chena cultivation than in paddy cultivation; the cultivators in Aliyawala are more involved than those in Madumana when they are engaged in paddy cultivation; and those in Nuwara Yaya are far more involved than those in Madumana and in Aliyawala when they cultivate paddy land. These points on the degree of involvement in agricultural work, although rough and simple, are adequate to examine the generosity and the tolerance of imbalance in labor co-operation in these settlements in the next section.

Ratio of Various Labor Forms in the Total Labor Input

In the previous sub-section, household labor use was analyzed in relation to the household labor output. In this sub-section, figures for labor input to household operations are examined. In other words, it is analyzed how various forms of labor are mobilized for household operations whether labor is mobilized within the household itself or from outside through labor co-operation. Table 6-2 shows

the percentage of labor input figure of each labor form in the total labor input in the three settlements. Here, by analyzing the figures of Table 6-2, I intend to discuss the degree of generosity in labor co-operation in these settlements. In this discussion, hired labor is ignored since it is not a form of labor co-operation. Kaiya group work is also neglected. This is because, as Table 6-2 shows, it is not significant in labor mobilization among most households. I here examine only attam and nikang.

Concerning the ratio of the above forms of labor co-operation in labor input figures, there are two types of patterns of the ratio among the three settlements in Table 6-2. The first type is seen in paddy cultivation of Madumana. The second type is seen in chena cultivation of Madumana and paddy cultivation of Aliyawala and Nuwara Yaya.

The characters of the first type are as follows:

1. Percent of nikang is higher than percent of attam.
2. Percent of attam (II) is significant in the total labor input although percent of attam (I) is higher than percent of attam (II).
3. Percent of nikang (I) is significant in the total labor input.

These characteristics of this type imply higher degree of generosity in labor co-operation in the settlement. As I mentioned in Chapter III, nikang help is not expected to be reciprocated by help of the same kind and quantity. Instead, only when it is asked, it is reciprocated in help of different kind and quantity. In this sense,

TABLE 6-2

PERCENTAGE OF EACH FORM OF LABOR IN TOTAL LABOR INPUT

	% of household labor input	% of attam labor input	% of nikang help input	% of kaiya labor input	% of hired labor input	Total
Madumana (Paddy)	56.8	18.8 (13.5, 5.3)	24.4 (13.8,10.6)	- (-- , --)	-	100
Madumana (Chena)	63.2	27.8 (27.8, --)	8.5 (0.5, 8.0)	0.5 (0.3, 0.2)	-	100
Aliyawala (Paddy)	46.7	26.4 (21.0, 5.4)	13.8 (1.5,12.3)	- (-- , --)	13.1	100
Nuwara Yaya	39.3	45.6 (42.9, 2.7)	5.2 (0.4, 4.8)	0.6 (-- , 0.6)	9.3	100

Note: Figures in brackets give labor input figures of Type I and Type II in each category of labor co-operation. For instance, the bracket (a, b) implies man-days of Type I and b man-days of Type II in their concomitant category of labor co-operation.

nikang help is, whether nikang (I) or nikang (II), far more generous than attam exchange labor. In addition, attam (II) is more generous than attam (I) since host cultivator can obtain some attam (II) exchange labor from the fellow cultivators who do not need practically any more exchange labor for their operations. Further, nikang (I) is a co-operation among close friends or neighboring cultivators in the locality. As I mentioned earlier, nikang (I) cannot normally be mobilized on a large scale. If a high rate of nikang (I) is found in labor input figure, it indicates that the co-villagers generously help each other. However, although the ratio of nikang (II) is also a good criterion of generosity among close kinsmen, it cannot be employed for the analysis here. This is because, since the ratio of nikang (II) is largely affected by the density of networks of close kinsmen among the settlers, it is difficult for us to control the density of close kinsmen among those cultivators in these settlements to make such a comparison. Apart from the rate of nikang (II), it can be said from the above discussion that higher rates of those forms of labor co-operation (i.e. that of nikang help, attam (II) and nikang (I)) in labor input figures indicate higher degree of generosity in labor co-operation in the settlement. Then, as Table 6-2 shows on paddy cultivation of Madumana, the percentage of nikang (24.4) is higher than the percentage of attam (18.8); attam (II) (5.3) is significant; and nikang (I) is also significant in the total labor input. Labor co-operation in paddy cultivation of Madumana, consequently, can be said to be very generous.

The second type of pattern of the ratio given in Table 6-2 is in contrast to the first type. The characteristics of the second

type are as follows:

1. The percentage of attam is considerably higher than the percentage of nikang.

2. The percentage of attam (II) is not significant in the total labor input.

3. The percentage of nikang (I) is not significant in the total labor input.

It is now evident from the previous discussion on the first type that the characteristics of the second type indicate less generosity in labor co-operation. This is because less generosity is indicated by higher percentage of attam, lower percentage of attam (II) and nikang (I). In chena cultivation of Madumana and paddy cultivation of Aliyawala and Nuwara Yaya, as Table 6-2 shows, the percentage of attam is higher than the percentage of nikang. Furthermore, the percentage of attam (II) and the percentage of nikang (I) are also lower and not significant in these three cultivation processes. Labor co-operation in these cultivation processes then can be said to be less generous. It is notable here that labor co-operation in Nuwara Yaya is the least generous since most labor mobilization is organized with attam labor exchange, especially attam (I) (i.e. 42.9 percent of the total labor input) and nikang help is least organized here among the four cultivation processes.

Although this analysis on the ratio of forms of labor co-operation in labor input figure is rather crude, it thus showed the general degree of generosity in labor co-operation in each agrarian settlement.

Balancing of Attam Exchange Labor

I examined above the degree of generosity in labor co-operation from labor input figures in the three settlements. In addition to the above analysis, there is another way to examine the degree of generosity, namely to check the degree of tolerance of imbalance in attam labor exchange. In attam labor exchange, labor assistance must be reciprocated by help of the same kind and quantity in a short time. But, as I mentioned earlier, the rules of attam labor exchange does not clearly define a range of tolerance of imbalance in exchange. In any reciprocal exchange of labor, a small imbalance in quantity between the exchange partners tends to take place in actual situations. Consequently, a relative range of tolerance of imbalance in exchange emerges among labor exchange partners, although it differs from one settlement to another, and also differs from one cultivation process to another.

Figure 6-1, Figure 6-2, Figure 6-3 and Figure 6-4 show the net man-days of attam exchange labor given and received versus operated acreage of paddy or chena land, in these three settlements. As Figure 6-1 shows, in paddy cultivation of Madumana, the households with smaller holdings of operated paddy land tend to help the other households with larger holdings of operated paddy land by giving more man-days of labor assistance than they get from the latter households even on attam basis. In other words, they have a large degree of tolerance of imbalance in exchange and they often help the other households which need more labor assistance. But, although

Figure 6-1 : Net Man-Days of Attam Exchange Labor Given and Received versus Operated Acreages of Paddy Land in Madumana.

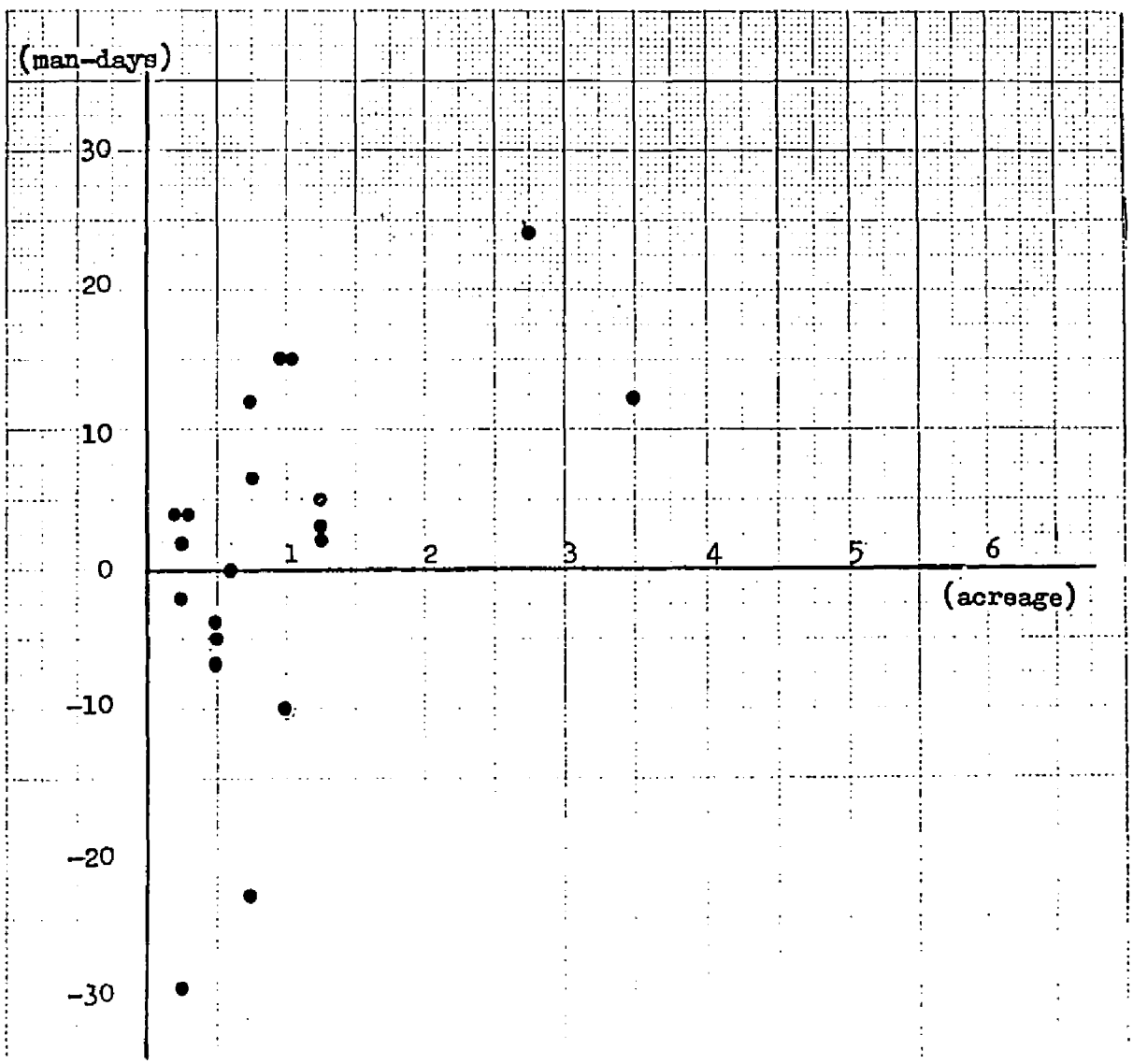


Figure 6-2 : Net Man-Days of Attam Exchange Labor Given and Received versus Operated Acreages of Chena Land in Madumana.

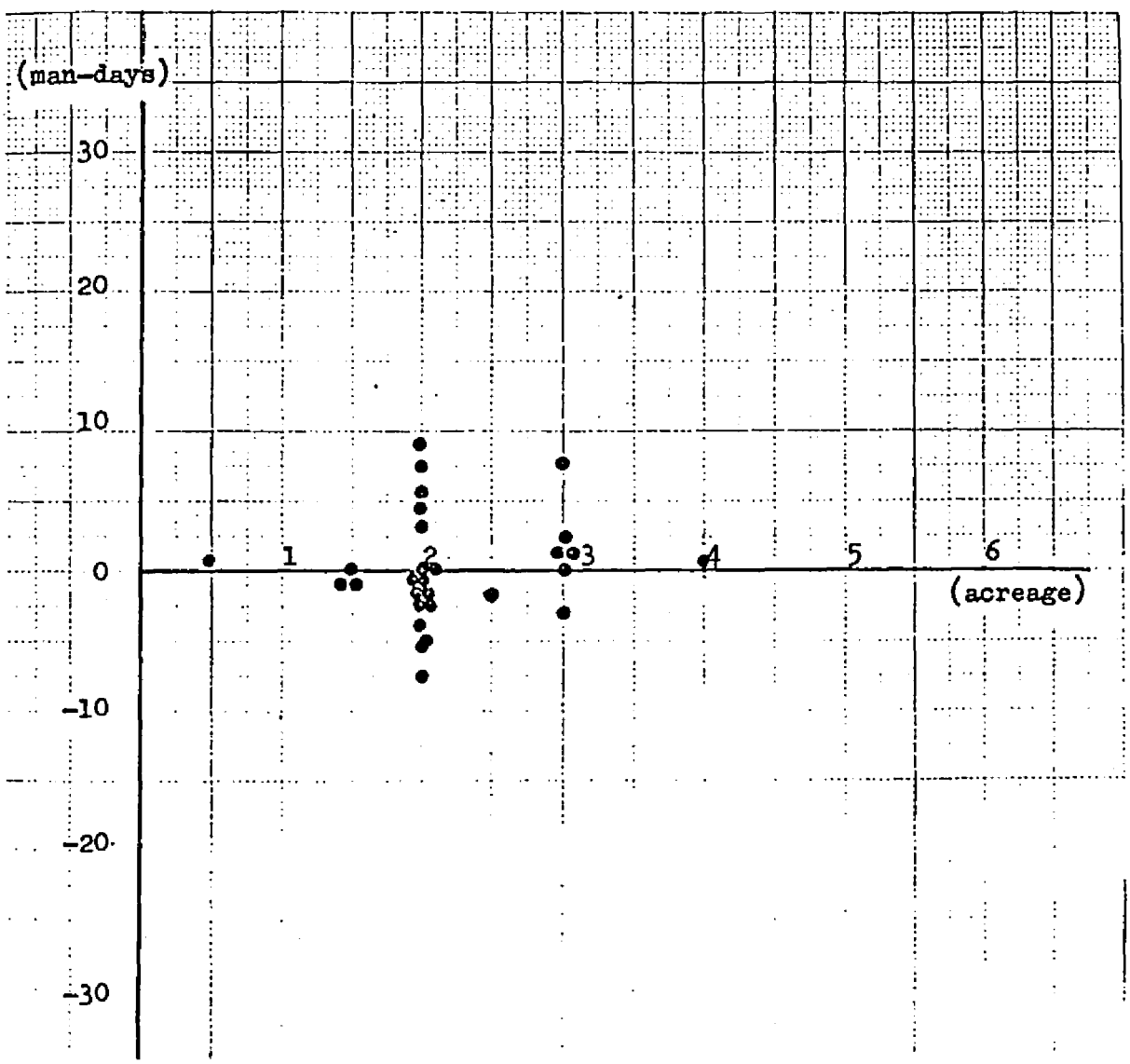
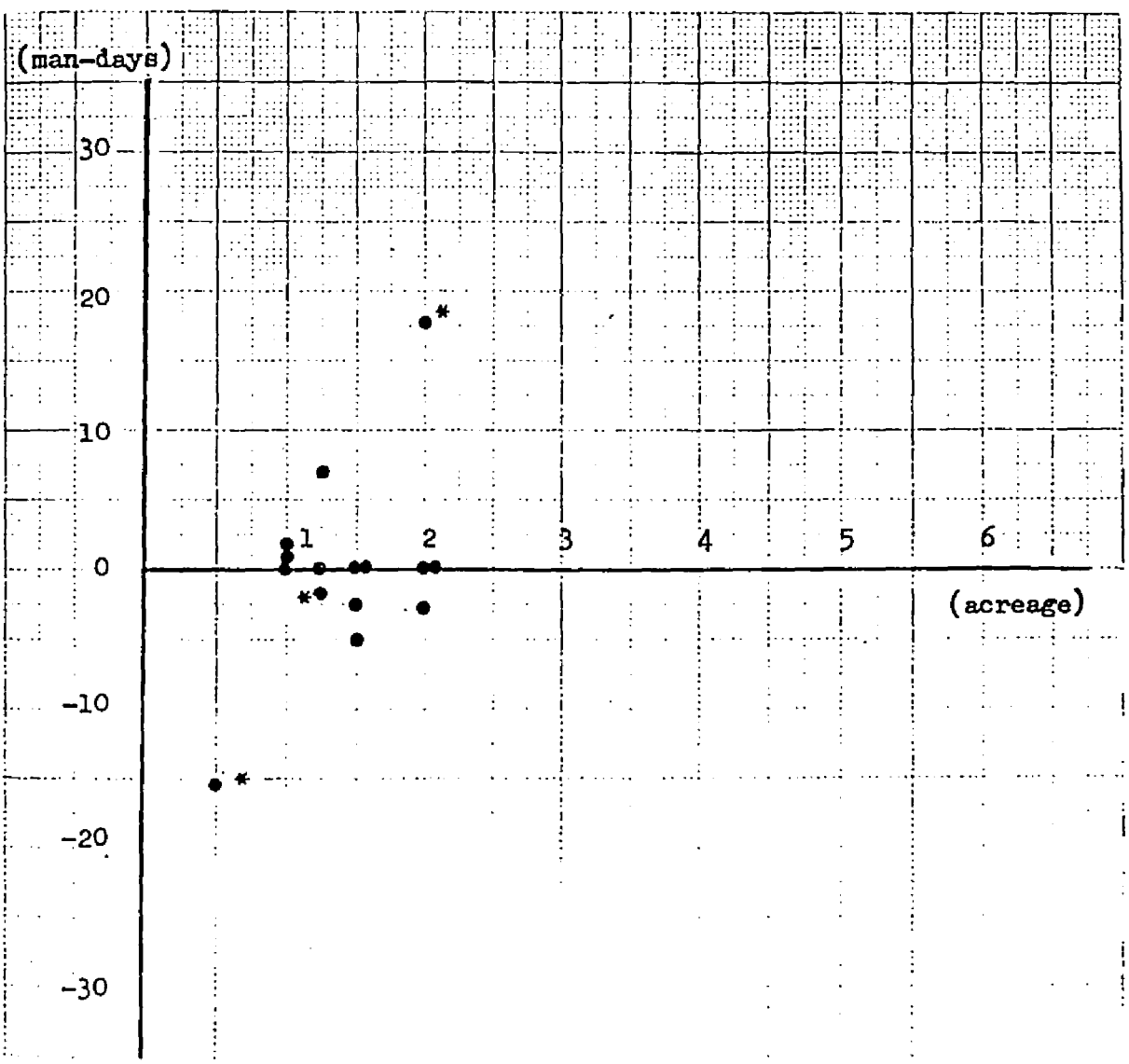


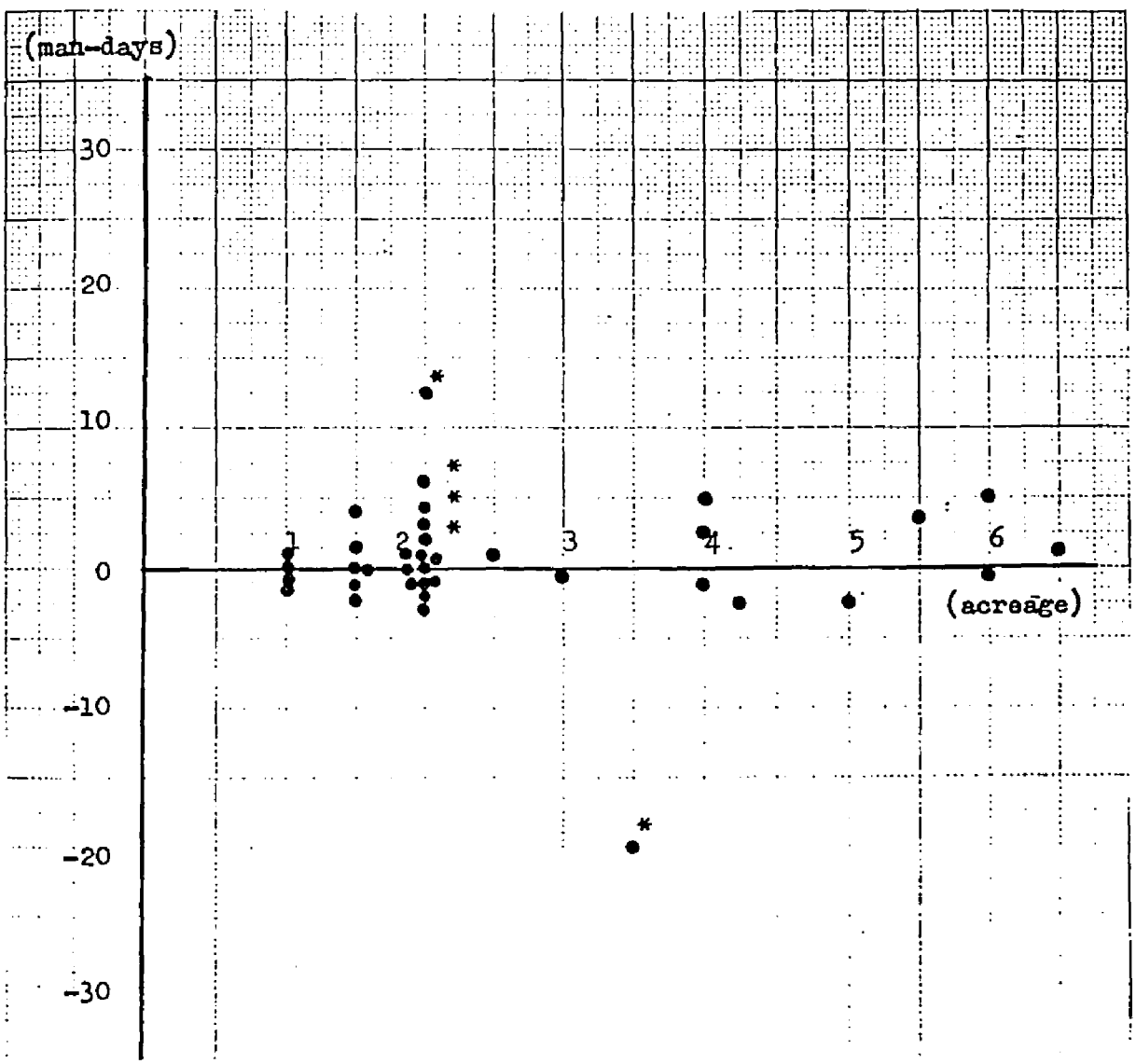
Figure 6-3 : Net Man-Days of Attam Exchange Labor Given and Received versus Operated Acreages of Paddy Land in Aliyawala.



Note: The balancing of attam exchange labor is restricted to that among the Aliyawala settlers.

* indicates the three households of berava caste.

Figure 6-4 : Net Man-Days of Attam Exchange Labor Given and Received versus Operated Acreages of Paddy Land in Nuwara Yaya.



Note: The balancing of attam exchange labor is restricted to that among the the Nuwara Yaya settlers.

* indicates the five households of berava caste.

the villagers in Madumana maintain similar social relations throughout the year, the range of tolerance of imbalance differs from paddy cultivation to chena cultivation. As Figure 6-2 shows, they do not have a large degree of tolerance of imbalance in chena cultivation. In Aliyawala, according to Figure 6-3, it is evident that except the three households of the beravā caste which show a relatively large tolerance of imbalance, the other households of the govigama caste do not have a large degree of tolerance of imbalance in attam exchange. The similar pattern can be seen in Nuwara Yaya, too. As Figure 6-4 shows, except the five households of the beravā caste, the other households have the least tolerance of imbalance in attam labor exchange among these three settlements.

Thus, from the above statistical examination of balancing in attam labor exchange, we saw that while the households of Madumana in paddy cultivation are generally very generous in attam with a higher tolerance of imbalance, they are not so in chena cultivation. Furthermore, we saw that the households in Aliyawala and Nuwara Yaya are also not so generous in attam labor exchange with a less tolerance of imbalance. It is notable here that concerning the degree of generosity in each settlement, the result of the analysis of balancing in attam seems to be similar to the result of the previous analysis on the ratio of forms of labor co-operation in labor input figures. I shall then examine these tendencies in labor co-operation in terms of characters of each cultivation process in the settlements below.

Generosity in Labor Co-operation in these Three Agrarian Settlements

As I mentioned earlier, the cultivators in these settlements commonly have similar norms of mutual aid. But, as we have seen in the previous statistical examinations, the actual degree of generosity in labor co-operation differs from Madumana to Aliyawala to Nuwara Yaya. In order to discuss such different degrees of generosity in labor co-operation among them, I shall examine three conditions in the work process which seem to constrain or affect actual labor co-operation practices. Here, these conditions are as follows: scarcity of labor; drudgery of labor; and degree of normative control over the settlers in mutual aid. Analyzing these conditions in four cultivation processes in the settlements, I shall clarify the reasons for the differences in generosity among them and discuss a model of the decision making process concerning generosity in labor co-operation.

First of all, I shall examine the different degrees of generosity in labor co-operation between paddy cultivation and chena cultivation in Madumana. From the statistical figures analyzed above, it is evident that the cultivators generously help each other in paddy cultivation, while they do not do so in chena cultivation. This difference looks strange since the villagers in Madumana maintain the same norms of mutual aid in paddy cultivation as well as in chena cultivation through a year. However, considering the above three conditions in work process, we can find the reasons for such a difference in labor co-operation. In Madumana, as Table 6-1 shows, the

cultivators are relatively less occupied with their own paddy work due to smaller scale of operated paddy land holdings. It means that they have enough time to spend for labor assistance to others without sacrificing their own operations. In addition, paddy work in Madumana is not very hard. Although it is a back-breaking task, it does not hurt the cultivators with thorns and poisonous trees or creatures. Further, as paddy land is located beside the settlement, they do not need to bother walking to reach the paddy field. Thus, paddy work does not mean much drudgery for the host cultivators or the helpers. Furthermore, paddy work is carried out in the village field next to the settlement, so that the cultivators know each other's whereabouts, especially whether they are working in the field or resting at home. Since they are always seen by one another in this small village, they can hardly reject the request of labor assistance from others when they are free. In other words, such a high visibility in the setting of the settlement strongly enforces norms of mutual aid to the villagers.

In paddy cultivation, thus, due to less scarcity of labor for their own operations and less drudgery in paddy work, the villagers do not hesitate to help others generously whether on attam or nikang. Furthermore, even if some of them do not feel like helping others due to laziness, they are to a considerable extent obliged to help them due to higher normative control in mutual aid.

On the contrary, chena cultivation has different conditions influencing the work process. As Table 6-1 shows, they are relatively busy with their own operations in chena site. They consequently do

not have much time to spend on work of other people. In addition, work in the chena is far harder than work carried out in the village paddy fields. In chena cultivation, many cultivators suffer from injuries caused by thorns, sharp stumps and poisonous creatures in chena plots. And also, they suffer from moving through the thick forests from one plot to another in labor co-operation. Due to the scarcity of labor for their own operations and higher drudgery of chena work, they then hesitate to help others in more than the precise quantity of reciprocation. Furthermore, the normative control to the cultivators in mutual aid is relatively weak in chena cultivation. In contrast to paddy cultivation, chena cultivation is carried out in several chena sites dispersed in the forests surrounding the village settlement. The cultivators do not see each other except a few of them in the neighboring plots of the chena site. With a lesser degree of visibility in the setting of the chena cultivation process, even if someone is asked to help the others, he can easily make an excuse, whether true or not, saying that he is or will be fully occupied with his own operations in his plot. Consequently, the cultivators appear to be less generous in chena cultivation than in paddy cultivation in Madumana.

A similar kind of difference in labor co-operation is also seen between paddy cultivation in Madumana and paddy cultivation in Aliyawala. As I described in Chapter II, most settlers are relatives in both settlements, so that they are supposed to have norms of mutual aid in a similar level of intensity. But despite their maintaining of similar norms of mutual aid, there is a clear difference in degree of the generosity in labor co-operation between Madumana and

Aliyawala, as we saw previously. Then, this difference can also be understood in terms of the three conditions in work process. Regarding the scarcity of labor, as Table 6-1 indicates, those cultivators in Aliyawala are busier than those in Madumana due to their larger holdings of paddy land in Aliyawala. In this sense, they do not have much time to help others generously without sacrificing their own operations. Regarding the drudgery of paddy work, although paddy work in Aliyawala itself is similar to that in Madumana, the cultivators in Aliyawala have to walk about two miles to reach their paddy fields everyday. In this sense, the paddy work as a whole is harder in Aliyawala than in Madumana. Furthermore, concerning normative control to the settlers in mutual aid, enforcement of norms in Aliyawala is very weak. Because of the two miles distance between the paddy field and the settlement in Aliyawala, the cultivators working in the paddy field cannot see whether other cultivators absent from the field are occupied with other work or leisure in the settlement. In fact, I observed that they often made an excuse to avoid imbalanced labor co-operation in such a situation. Hence, it can be said that they are not strongly enforced by norms of mutual aid to help others generously in such a situation. Due to the above reasons, the cultivators help each other less generously than those in Madumana in paddy cultivation.

In Nuwara Yaya, the generosity in labor co-operation is quite similar to that in Aliyawala, but it is less generous than in Aliyawala. Regarding the drudgery of paddy work, the drudgery in Nuwara Yaya is not so high than that in Aliyawala since those cultivators in

Nuwara Yaya have paddy lands near the settlement. But, they suffer from scarcity of labor for their own operations due to larger holdings of operated paddy lands. As Table 6-1 indicates, they are more occupied with paddy work than those in Aliyawala. Furthermore, as I discussed about household labor allocation in Nuwara Yaya in the previous Chapters, they are more oriented to maximize their profit through paddy cultivation than those in Aliyawala. Consequently, for the cultivators in Nuwara Yaya, imbalanced labor exchange directly means the loss of their household labor, and such a loss tends to be calculated in terms of the cash value equivalent for the imbalance in labor co-operation. They seldom have a higher degree of tolerance of imbalance in labor co-operation. In addition, although the settlers in Nuwara Yaya can see the whereabouts of others, this visible setting of the settlement does not contribute much to increasing normative control to the settlers in mutual aid. This is largely because most cultivators are not relatives but strangers in Nuwara Yaya so that they do not care about their image in the eyes of others. As a result, they seldom accept the request of attam (II) or nikang help from the co-settlers, but they organize exclusively attam (I) in the precise reciprocation of labor assistance. Further, they normally ask compensation of imbalanced attam (I) and receive cash equivalent for the imbalance in terms of wage of hired laborers. Thus, due to higher scarcity of labor, strong orientation to maximizing individual benefits and less normative control to the settlers in mutual aid, the cultivators in Nuwara Yaya help each other least generously among the cultivators in these three settlements.

From the above discussion, it is evident that although norms of

mutual aid are shared among those cultivators in the three settlements, the degree of generosity and tolerance of imbalance in labor co-operation differs from one cultivation process to another, according to such varying conditions in work process. It means that a simple description of norms or rules of labor co-operation can never provide a sufficient account of labor co-operation in practice. In order to adequately grasp actual process of labor co-operation, as I discussed earlier, we have to understand individual's strategy or the decision making process in which the individual decides the precise kind and quantity of labor to be given or returned in a given context. In this sense, based on the above analysis, we can now present a qualitative model, though rude, of the decision making process concerning the generosity and tolerance of imbalance in labor co-operation in these three agrarian settlements as follows: if a cultivator is situated under such work conditions as less scarcity of labor for his own operation, less drudgery of cultivation work, and higher degree of normative control to the settlers in mutual aid, he appears to be more generous in labor co-operation; if not so, he appears to be less generous in labor co-operation. Thus, this model clarifies the point raised at the beginning of this Chapter, namely the context in which the cultivator generously offers labor assistance to others.

At the same time it shows that the debate on whether peasants are moralistic or rational in their economic behavior seems empirically meaningless since they have both aspects. As far as labor co-operation is concerned, labor co-operation in agricultural

process is both social end economic. As I discussed in this Chapter, the cultivator is both instrumentally oriented towards his self-interests and more or less concerned with his image in the eyes of the others. In other words, he can be called as a "realistically ethical" (Southard et al 1981 : 102) peasant, but neither simply a "moral peasant"(Scott 1976) nor a "rational peasant" (Popkin 1979).

CHAPTER VII

EXPLORATION FOR EXCHANGE LABOR IN THE THREE AGRARIAN SETTLEMENTS

This Chapter examines several concrete cases of Step 5 and Step 6 in the decision making process regarding labor exchange and complimentary labor mobilization. As discussed in Chapter IV, exploration for exchange labor is the crucial part of the maximization (or economization) process of labor exchange in the peasant agricultural production. It is only through competitive exploration for exchange labor in the locality that cultivators can satisfy the primary demand for exchange labor and enjoy maximum advantages from labor exchange[1]. As I shall show through some concrete cases, result of exploration for exchange labor further determines how far one of the costs of peasant agricultural production (i.e. drudgery) can be reduced and at the same time to what extent the intensity of the production can be increased within a peasant mode of labor allocation[2]. In this Chapter, examining such individual cases in various contexts, I shall analyze labor exchange as a maximization process in

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1. In other words, quantitative result of exploration for exchange labor becomes actual availability of exchange labor to host cultivator's operation and it in turn determines to what extent he can enjoy those advantages of labor exchange.

2. "Peasant mode of labor allocation" implies here that agricultural production is carried out with both household labor and labor cooperation in the locality without employing much wage labor. See the third Section of Chapter II for the detail.

concrete ecological and socioeconomic settings. On the basis of these ethnographic materials, I shall go on to discuss some distinct characteristics of labor exchange, especially the two key questions raised in Chapter I.

It is, as discussed at the end of Chapter IV, noted that actor-oriented analyses presented here have a distinct perspective to sufficiently understand exploration for exchange labor. This is because exploration for exchange labor is analyzed here with having estimated the primary demand for exchange labor in each case. It is in fact important for us to grasp the primary demand for exchange labor that clearly indicates the intensity and competitiveness of exploration for exchange labor. Without grasping the intensity and competitiveness in quantity, we would not sufficiently examine how seriously each household tries to meet such a demand through the two competitive organizational processes (i.e. forming a large household network of labor exchange and organizing exchange labor within such a network). As mentioned in Chapter I, this actor-oriented approach obviously contrasts with normal social anthropological approach employed by Leach (1961) and Robinson (1968, 1975), in which observers try to find the correlation between the actual organization of labor exchange teams and other factors (such as kinship relation and the locality of their houses or fields) in order to find its organizational principle. Since such an approach does not give attention to cultivator's demand for exchange labor and also competitive and rather accidental process of exploration for exchange labor, it fails to understand its competitiveness and also to find

actual organizational principles in detail. As a result, it brings only a simple statement on the organizational principles of labor exchange as "individual convenience" (e.g. Leach 1961 : 251). I thus believe that actor-oriented analyses here will show new pictures of labor exchange in peasant agricultural production.

Exploration for Exchange Labor in Madumana

The villagers in Madumana practice two modes of agriculture, namely, paddy and chena cultivation. As discussed in Chapter V, paddy and chena cultivation are very different ways of farming, demanding radically different modes of labor mobilization. While labor exchange is technically or psychologically required at most stages of paddy cultivation, it is only psychologically required at the three stages (i.e. felling trees and scrubs, clearing the plot, and harvesting millet) of chena cultivation. Furthermore, as discussed in Chapter VI, the degree of tolerance of imbalance in labor exchange of paddy cultivation differs from that of chena cultivation due to their different work conditions. In addition, the formation of a relatively fixed household network of labor exchange of paddy cultivation differs from that of chena cultivation mainly due to different accessibility to the other households. As a result, there are clear organizational differences in exploring for exchange labor between these two cultivation processes. In the paddy cultivation, exploration for exchange labor appears less competitive and more moralistic so that "large households" which have relatively less household labor capacity for cultivation area, tend to have labor exchange relations with "small households" which have relatively more

household labor capacity for cultivation area. Consequently, attam labor exchange often becomes imbalanced and attam (II) frequently takes place between "large households" and "small households", although attam (I) with the precise balance also takes place among medium households. On the contrary, in the chena cultivation, exploration for exchange labor becomes more competitive and less moralistic. However, due to the different work conditions in intensity and drudgery among those chena plot holders, they often fail to explore for exchange labor sufficiently and, in many cases, come to depend upon nikang (II) help from their close kinsmen. This section will deal with such differences in detail.

Exploration for Exchange Labor in Paddy Cultivation

Madumana is a small, isolated village in the forests. The houses cluster around the village paddy fields. The villagers use a common bathing place and a road through the settlement when they are engaged in paddy cultivation. Because of such village settings, anyone knows any others' whereabouts as well as cultivation schedule, so that any household, cultivating paddy land, has a relatively fixed household network of labor exchange, which includes all the households in the village. However, it does not mean that each household fixes labor exchange contracts with the others at random. In fact, there is a distinct pattern in organizing labor exchange in the process of paddy cultivation in Madumana. As discussed in Chapter VI, the people in Madumana generously help their fellow cultivators and pay little attention to the imbalance in attam labor as far as they are engaged in paddy cultivation. Under such a circumstance,

large households try to fix labor exchange contracts with small and sometimes medium households. Since they do not normally reject such requests from large households, the actual exchange of attam labor tends to take place between one large household and several small and medium households. As I shall show some cases below, this is the typical pattern of labor exchange in Madumana's paddy cultivation.

H.M. Tilakaratne (M-8) is an old and respectable farmer in the village. He is a modest individual and is always neutral in village politics. He owns 0.5 acres of paddy land and cultivates a further 2.25 acres on an ande basis. His household is constituted by two nuclear families: his family and his eldest son's family. The paddy work is carried out chiefly by Tilakaratne, his wife, his three sons and eldest daughter. Due to large capacity of household labor (i.e. four male and two female workers), he can manage to complete most stages of the cultivation without much labor assistance from the other households. But, since some stages such as transplanting, cutting rice straw and threshing require labor mobilization more than his household labor, he has to organize labor co-operation with the others for such operations.

As I discussed in Chapter V, transplanting must be completed in two or three days after harrowing the field. Normally, 18 man-days of labor force is required on average for transplanting one acre of paddy land in Madumana. Consequently, Tilakaratne, cultivating 2.75 acres, had to organize labor as much as about 50 man-days (including his household labor, attam exchange labor and nikang

help) within two or three days. Because it required a large scale of labor mobilization, Tilakaratne decided to complete the operation in three days. Six workers in his household can work for this operation, although only two female workers can exchange attam labor with the other households. Then, out of 50 man-days, 18 man-days of labor force can be obtained from his own household. About 32 man-days of labor, consequently, must be recruited from the other households.

However, this primary demand for labor mobilization is much higher than his household's labor reciprocation capacity. In Madumana, land preparation must be completed within 15 days due to the rule of collective water management. Since it takes at least 9 days for them to complete those operations up to the second plowing, transplanting must be carried out in 6 days approximately. Further, as only female labor can be exchanged on attam basis for this operation, only Tilakaratne's wife and daughter can join labor exchange relations with the other households. In addition, as mentioned before, he decided to complete transplanting in three days time. Then, Tilakaratne's household reciprocation capacity can roughly be calculated as follows:

The household labor reciprocation capacity
= H • (T-D)
= 2 • (6-3)
= 6
(H : 2, T : 6, D : 3).

Thus, as long as the precise reciprocation is maintained, Tilakaratne can exchange attam labor as much as 6 man-days in maximum with the others. This is obviously less than the primary demand for exchange labor of 32 man-days. However, since he knew from his past experi-

ences that many households would help him generously even on attam basis, he tried to explore for exchange labor more than the above limit of exchange labor.

In order to secure the above amount of labor assistance, Tilakaratne began to explore for attam labor in the village just before second plowing. Normally, he used to visit first two small households which cultivate a small area of paddy land and also have relatively many household workers. One of them was A.G. Siriwardane's (M-4) household, which cultivates only 0.25 acres of paddy land with two young male workers and their mother. The other was H.M. Kiribanda's (M-12) household, which cultivates 0.75 acres with three young male and two female workers. Because of their sufficient labor capacity, these two households often give attam labor and nikang help to Tilakaratne and other large households without much expectation for return help from them. In case of Tilakaratne's transplanting, Siriwardane was not considered since he was planning to employ broadcast sowing. Tilakaratne then visited Kiribanda to fix 5 man-days of attam labor, although Kiribanda had already arranged labor co-operation with others for his operation. In this sense, this labor assistance can be said as attam (II). Tilakaratne further visited five households which were planning to employ transplanting. Out of these five, H.M. Somadasa (M-21) agreed to help his operation with 2 man-days of attam labor, although he also had already arranged labor exchange with others. It could be done since his household had many workers, namely, three male and three female workers, even though they had to transplant 1.50 acres of paddy land. The other four households also agreed with labor

exchange with Tilakaratne simply due to their practical need for labor mobilization. As a result, Tilakaratne could fix 11 man-days of attam labor from six households. However, the labor force arranged up to this time was still not sufficient, since labor force of 21 man-days was needed more. Tilakaratne then visited several households to fix nikang (I) help of 12 man-days. He further sent a message to his wife's brother (massinā) in a neighboring village and secured nikang (II) help of 9 man-days from his household.

Thus, Tilakaratne could finally arrange these labor assistance to meet the primary demand for labor to his transplanting and in fact carried out it without much trouble. Table 7-1 shows Tilakaratne's arrangement of attam labor and helpers' household characteristics. As showed in Table 7-1, although he could not secure the whole need of labor mobilization with attam labor, he could obtain attam labor more than his household labor reciprocation capacity and return attam labor only as much as his household labor reciprocation capacity (i.e. 6 man-days). Although he did not return attam debt much to H.M. Kiribanda (M-12) and H.M. Somadasa (M-21), this was not a problem for Tilakaratne as far as his household members seemed to be helpful to the others at times of crisis. They in fact maintained the neutral position in the village politics and tried to help the others in various occasions such as ceremonial times and illness.

In contrast to Tilakaratne, A.G. Siriwardane (M-4) is a small household owner. As mentioned before, Siriwardane's household has two young male and one female workers and cultivates only 0.25 acres of paddy land, so that he has obviously sufficient household labor

force to complete any stage of the cultivation without any labor assistance from outside. But, because of such a large household labor force for paddy land area, the members of Siriwardane's household are often asked to join attam relation from other households, especially from those large households. As a result, Siriwardane's household comes to have many attam relations with them without much practical reasons. In order to see the labor mobilization of small households, I shall examine the case of Siriwardane's labor arrangement for broadcast sowing below.

Before starting broadcast sowing, Siriwardane and his brother had already given H.M. Heenbanda (M-7) 4 man-days of attam help and A.G. Mudalihamy (M-6) 2 man-days of attam help so that Siriwardane had already had the right to obtain 6 man-days of attam labor from them for his broadcast sowing. In Madumana, 2 man-days of attam labor is normally required to carry out broadcast sowing for 0.25 acres of paddy land. This means that Siriwardane could have completed the operation with his brother and six helpers in return within two or three hours. But, in the actual operation, he carried out the operation only with his brother and A.G. Mudalihamy for half a day. This is because he chose to reduce some cash costs of tea and cigars, which had to be served in attam occasions, for giving up most of labor assistance to be given to Siriwardane. It is in fact important for poor farmers to reduce such cash costs in the process of the

TABLE 7-1

H.M. TILAKARATNE (M-8)'S ARRANGEMENT OF ATTAM LABOR IN TRANSPLANTING

Attam partner	Cultivation area (acreage)	Household worker (Male, Female)		Attam given to M-8 (man-days)	Attam returned from M-8 (man-days)
M-12	0.75	3	1	5 (attam II)	1
M-13	1.25	1	2	1 (attam I)	1
M-15	0.50	1	2	1 (attam I)	1
M-17	0.75	1	1	1 (attam I)	1
M-21	1.50	3	3	2 (attam II)	1
M-22	1.00	1	1	1 (attam I)	1
TOTAL				11	6

* Tilakaratne (M-8)'s household cultivates 2.75 acres of paddy land with 4 male and 2 female workers in the household.

cultivation unless large mobilization of labor is needed. As a result, he helped them far more than he got in return. As statistically shown in Figure 6-1, small households often tend to help large households more than they get in return in the context of the paddy cultivation process under a higher tolerance of imbalance in labor exchange.

The above two cases of Tilakaratne and Siriwardane show that attam labor tends to be exchanged between large households and small or medium households under a higher tolerance of imbalance. This tendency can also be seen in other transactions of attam labor in Madumana's paddy cultivation. Appendix II-a shows all the transactions of attam labor through Maha paddy cultivation (1981) of Madumana. It shows that H.M. Tilakaratne (M-8) exchanged only a few amount of attam labor with H.M. Heenbanda (M-7), another large household cultivating 3.50 acres with three male and three female workers, but in contrast each of these large households often exchanged attam labor with small households such as A.G. Siriwardane (M-4) and H.M. Kiribanda (M-12). Further, similar pattern of labor co-operation can be seen in nikang help in Madumana's paddy cultivation. Appendix II-b shows the whole flow of nikang help in Maha paddy (1981). It clearly shows that large households (such as M-7 and M-8) got many nikang helps from many small households (especially M-4 and M-12). Thus, in Madumana's paddy cultivation, the villagers, who have excess household labor, generously help those who have not. However, it does not mean that they always do so. As showed below, they are in fact not so generous in the process of chena cultivation.

Exploration for Exchange Labor in Chena Cultivation

Labor mobilization is required at three Stages (felling trees and scrub, clearing plots, harvesting millet) of the chena cultivation and these requirements are not technical but psychological. Since the decision making process regarding labor exchange and complementary labor mobilization falls into either Type A or B (see Chapter IV), larger amount of exchange labor is preferred at these stages of the chena cultivation. However, it is not a easy task for the cultivators to form a large household network of labor exchange for the chena cultivation. Because of the spatial dispersion of the chena sites in a wide area surrounding the village, that in turn limits the communication about their conditions and schedules of the cultivation, the cultivators are obliged to form a relatively fixed household network of labor exchange within the same chena site. Consequently, such a network normally becomes smaller than that for the paddy cultivation. In addition, it is also difficult for them to organize a large amount of exchange labor within such a network. This is mainly due to the large difference of labor work in quantity and quality among the plots in the site. Since the cultivators do not have a higher tolerance of imbalance in the chena cultivation, they prefer to have attam labor with those plot holders, whose operations seem similar to each other in intensity and drudgery. Consequently, as it is very difficult for them to find suitable partners within their small household network of labor exchange, the actual practice of labor exchange appears very infrequent. Those who fail to organize exchange labor sufficiently, then come to rely on nikang help, espe-

cially nikang (II) from their close kinsmen in either the same or different site. Thus, in the process of chena cultivation, the primary demand for exchange labor is often not satisfied with the supply of exchange labor due to the above difficulties in exploration for it. To clarify this, I shall examine one of such a case of inefficient exploration for exchange labor below[1].

H.M. Kumarasinghe (M-22) cultivated about 2.50 acres of chena plot. He was the only worker in his household since his wife was expecting a baby and their child was too small to work in the chena site. He managed to complete the stage of felling trees and scrubs with other nine plot holders in the same site on attam basis. But, he unfortunately failed to set fire a large part of his plot so that he had to clear it again. Kumarasinghe estimated that it would take 15 man-days of labor force for the plot to be cleared. He then went to explore for exchange labor in his network, containing all the members of his chena site, only to find 4 man-days of attam labor from two plot holders. This is because most of them except Kumarasinghe and these two plot holders succeeded in setting fire to their

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1.On the contrary to the analyses in the paddy cultivation, the typology of households (i.e. "large" and "small") is not so useful to examine labor exchange practice in the chena cultivation. Since a plenty of chena sites are available to the villagers in Laggala, cultivators can freely expand area of cultivation as long as their household labor capacity allows them to do so. As a result, unlike in the paddy cultivation, the ratio of household labor capacity for area of cultivation becomes more or less equal among those cultivators. It means that each member of the households, whether those households cultivate large area or not, is equally busy and, to the same extent, occupied with the chena work. No distinct flow of exchange labor consequently takes place between "small" and "large" households in the chena cultivation. This is why such a typology is not employed here.

plots and did not need any exchange labor for their operation. Further, the invisibility in the chena site made it possible for them to reject Kumarasinghe's request for attam help (which would have appeared attam (II)) by telling a lie. One day, Kumarasinghe visited one plot distant from his own within the same chena site and asked the plot holder to help him on attam basis for the operation on the next day. But, he politely rejected Kumarasinge's request, saying that he had to go to Pallegama for shopping. Next day, however, I happened to come to the village and saw him in his friend's house doing nothing. He reluctantly told me that he had just changed his mind. Thus, the invisibility in the chena site tends to loose the normative control of mutual aid and makes them easily avoid the imbalanced attam (I) and also attam (II). Since Kumarasinghe could not arrange the sufficient amount of exchange labor, he then went to ask his close kinsmen to give him nikang help and finally arranged 2 man-days of nikang (II) from his massinā (WB) and 1 man-day from putha (step-brother's son). Through the above exploration for exchange labor and nikang help, he finally cleared some parts of the plot with these few helpers for a few days and the rest of the operation by himself alone for several days under the strong sunshine.

Exploration for exchange labor is thus proceeded within the same chena site and often appears unsuccessful due to the above conditions of the chena cultivation. As a result, the rest of the demand for labor assistance tends to be met by not from their co-villagers but from close kinsmen. These tendencies can statistically be seen in Appendix II-c and II-d. Appendix II-c and II-d show that

while attam labor is frequently exchanged within one chena site, nikang help is often given to different sites where their close kinsmen cultivate the plots.

The clear difference in exploration for exchange labor between the two modes of agriculture in Madumana thus shows a wide variability of the peasant behavior in mutual aid. Even within a single cultural and normative setting, they sometimes appear generous and moralistic and other times become selfish and competitive. In the next section, I shall describe some cases of exploration for exchange labor in Aliyawala, which are more competitive than that in the paddy and the chena cultivation of Madumana.

Exploration for Exchange Labor in Aliyawala

In Aliyawala, there are two groups of different castes, namely, the households of beravā caste and those of govigama caste. As mentioned in Chapter II and also shown in Appendix II-e and II-f, those of beravā caste (i.e. A-18, A-19 and A-20) maintain very close linkages of labor co-operation with themselves as well as those of the same caste in the neighboring settlements. As shown in Figure 6-3, they have a high tolerance of imbalance in labor exchange. This is largely because they are isolated from those of govigama caste in Aliyawala for labor co-operation so that they are obliged to maintain reciprocity in long term among themselves. Consequently, their pattern of exploration for exchange labor appears similar to that of Madumana's paddy cultivation. On the contrary, those of govigama caste in Aliyawala can potentially have labor exchange linkages with

those of the same caste in Aliyawala and the neighboring settlements so that they can choose certain households suitable for labor exchange out of a wide range of households here. As a result, together with the other work conditions discussed in Chapter VI, exploration for exchange labor in Aliyawala appears more competitive and strategic without much tolerance of imbalance in labor exchange. Since exploration for exchange labor with a higher tolerance of imbalance has been discussed in the last section, I shall not examine exploration for exchange labor among those of beravā caste but that among those of govigama caste here.

As discussed in Chapter II, those of govigama caste in Aliyawala have come from Madumana except one household from Pallegama. Consequently, like those in Madumana, they are related, whether close or not, in the genealogical sense (see Appendix I), and they in fact call each other with classifactry kinship terms. However, as examined in Chapter VI, they do not have a high tolerance of imbalance in labor exchange due to such factors as high scarcity of labor, high drudgery of the paddy work and less normative control in mutual aid. In addition, the wide possibility in choosing better partners for labor exchange among those of govigama caste, as mentioned before, makes exploration for exchange labor more competitive and strategic. In Aliyawala, as these settlers cultivate almost equal area of paddy land in Karaugahawela which is two miles from their settlement, there is no clear difference between "large households" and "small households" in terms of labor demand. But, due to different household labor capacity among them, there is a clear distinction between "large households" and "small households" in terms of household labor

capacity. Under a lower tolerance of imbalance in labor exchange, it is notable that household labor capacity appears crucial to understand exploration for exchange labor. Unlike in the paddy cultivation of Madumana, those cultivators under the above circumstance do not consider much to what extent the others need exchange labor, but who are better cultivators for labor exchange. Consequently, a large household (with large household labor capacity) tries to form its relatively fixed household network of labor exchange, containing several other large households, so that this household can secure a large and reliable amount of exchange labor without visiting many households in the locality. On the contrary, those small households are often excluded from the above relatively strong linkages of labor exchange among large households, and are obliged to have small amount of exchange labor with other small households and also ask their close kinsmen for nikang help. Thus, although the settlers are genealogically related, they explore for exchange labor competitively on behalf of themselves in Aliyawala. Since these competitiveness and tactics in labor exchange have scarcely been examined in anthropology, I shall present some cases of competitive exploration for exchange labor below.

I.G. Heenbanda (A-10) cultivates 2.00 acres of paddy land with his wife, one son and one daughter. Because of a relatively sufficient household labor, Heenbanda can manage to carry out most stages of the paddy cultivation except a few stages such as broadcast sowing and cutting rice straw. As shown in Table 7-2, Heenbanda has formed a relatively fixed household network of labor exchange, containing

seven households in Aliyawala. Except W.G. Ranasinghe (A-3) cultivating 1.00 acre of paddy land with his wife, the other six households cultivate 1.50 - 2.00 acres with at least three or four workers in each household. Further, Heenbanda's network does not contain such small households as H.M. Upali (A-9) and H.M. Sumanapala (A-12) which have only two workers (i.e. husband and wife) in each household. This formation of the household network of labor exchange is obviously derived from the large household's practical motivation not to help the others more than they obtain in attam labor exchange. According to Heenbanda, if some household does not return attam labor to him, he has to recruit wage laborers for his operation. But, he cannot ask such a household to compensate the imbalance of attam labor with the cost of wage he pays, because most members of the households in Aliyawala are his relatives. As a result, he just avoids such a household without a large capacity of household labor for labor exchange. In fact, Heenbanda's network did not contain I.G. Somadasa (A-5), his own younger brother cultivating 1.50 acres with his wife who was expecting a baby, although he sometimes gave some nikang help to his brother. Thus, these households in Aliyawala competitively and tactically form their household network of labor exchange to secure their primary demand for labor.

Table 7-2 also shows Heenbanda (A-10)'s arrangement of labor exchange for his broadcast sowing to 2.00 acres of paddy land. In Aliyawala, it technically require about 8 man-days of male labor force to complete hand leveling and broadcast sowing to 2.00 acres in one day. Since Heenbanda and his son can work for this operation,

TABLE 7-2

I.G. HEENBANDA (A-10)'S HOUSEHOLD NETWORK AND ARRANGEMENT OF ATTAM LABOR IN BROADCAST SOWING

Attam partner	Cultivation area (acreage)	Household worker (Male, Female)		Attam given to A-10 (man-days)	Attam returned from A-10 (man-days)
A-2	1.75	2	1	-	-
A-3	1.00	1	1	-	-
A-11	1.75	2	1	2 (attam I)	2
A-13	2.00	2	2	1 (attam I)	1
A-15	2.00	3	1	2 (attam I)	2
A-16	1.50	2	1	1 (attam I)	1
A-17	2.00	1	2	-	-
TOTAL				6	6

* Heenbanda (A-10)'s household cultivates 2.00 acres of paddy land with two male and two female workers in the household.

6 man-days of exchange labor needed to be recruited from other households. As those cultivators had about two weeks to complete broadcast sowing due to the rule of water management in Karaugaha-wela, Heenbanda's household labor reciprocation capacity can be estimated as 26 man-days (i.e. 2 (household workers) • (14-1)(days)). Since the required amount of exchange labor (i.e. 6 man-days) is far less than his household labor reciprocation capacity, he can be supposed to have the sufficient amount of exchange labor without much difficulty. In fact, he visited those seven households and quickly fixed 6 man-days of attam (I) with A.G. Siriwardane (A-11), I.G. Punchibanda (A-13), I.G. Ukkubanda(A-15) and A.G. Kapilaratne (A-16), and later returned the same amount of attam labor to them in the same operation. As far as a relatively fixed household network of labor exchange maintains a sufficient capacity of exchange labor, it is thus easy to mobilize attam labor for most stages of the cultivation except some stages such as transplanting that requires much more labor mobilization.

H.M. Sumanapala (A-12)s' household is one of the small households in Aliyawala. In contrast to I.G. Heenbanda, he suffers from his inability to secure sufficient labor mobilization due to the small capacity of his household labor. After shifting from Madumana to this settlement in 1970, he had managed to maintain the relatively fixed household network of labor exchange, containing a few large households such as I.G. Heenbanda's up to 1978. In those days, he had cultivated 2.00 acres of paddy land with his wife without failing to return the debt of attam labor to his partners. But in 1979, his

wife gave birth to their first son so that she could not work in the field two miles away from their house. It was continued in 1980 since she got another baby. Due to this, Sumanapala failed in returning attam labor on many occasions and, as a result, his fellow cultivators began to avoid him as an attam partner. Since then, he had been shunned from the relatively strong linkages of labor exchange in Aliyawala. In 1981, although he still cultivated 2.00 acre with his wife's occasional help, he suffered much. In cutting rice straw, he estimated that 35 man-days of labor force would be necessary to complete the operation. As he realized that the neighbors were avoiding him in labor exchange, he visited A.G. Punchibanda (A-13) (one of his few acquaintances here) only to obtain 1 man-day of attam (II), and also H.M. Upali (A-9), his massinā to get 2 man-days of attam (II). Further, he sent a message to his younger brothers in Madumana for nikang (II) help. He could finally secure altogether only 5 man-days of labor assistance from outside. As a result, he had to cut rice straw with a few helpers for two days and continue to work with his wife for another 15 days. However, it does not mean that Sumanapala's household worked longer than the other households. As far as they cultivate the some area of paddy land, they spend almost the same amount of household labor. Only difference is that Sumanapala and his wife worked most of the time in their paddy fields, while the others did for a few days in their fields and for the rest of the days in the attam partners' fields. However, this difference is very important for us to understand the significance of labor exchange in relation to the intensity of peasant agricultural production.

As discussed in Chapter V, the operation of cutting rice straw

requires labor mobilization not for any technical reason but especially for psychological satisfaction of quick completion of the task. Sumanapala hence could hardly enjoy such an advantage of labor exchange in this operation. This inefficiency in labor exchange, together with those in the other stages of cultivation, in turn gave Sumanapala various psychological and also physical burden, which forced him to consider leasing out some parts of his land. In 1982, he in fact cultivated only 1.25 acres of paddy land and leased out 0.75 acres to one of the households in Nuwara Yaya on ande basis. Like Sumanapala's household, A.G. Pallegama (A-21)'s household is also one of the small ones in Aliyawala. Although he obtained 2.00 acres of paddy land in 1970, he leased 0.50 acres to the others on an ande basis in 1975 when their first baby was born. Since then, he, although reluctantly, has employed wage laborers to carry out the cultivation without much labor co-operation in the settlement. Although the intensity of peasant agricultural production is the complex result of many affecting factors such as stratification in access to resources and opportunities for off farm employment, household labor capacity is also an important factor, in relation to labor co-operation, constraining the intensity of agrarian production. The above cases of the small households in Aliyawala clearly showed that a small capacity of household labor affects the availability of exchange labor and in turn reduces the area of the cultivation to some extent in the peasant agricultural production. In other words, the failure in labor exchange results in the failure in reducing one of cost of peasant agriculture (i.e. drudgery). This means that peasant cultivators are forced to reduce such a cost by other methods

such as reducing their scale of the operation.

This section thus examined different exploration for exchange labor between the large households and the small households of govigama caste in Aliyawala. Due to the lower tolerance of imbalance in labor exchange and the wider range of choice to select the better attam partners for the practical benefits, these large households explore for exchange labor more competitively and tactfully than those in Madumana, so that those small households become isolated from them in labor exchange. Then, those small households are forced to reduce the intensity of their cultivation and also to rely on nikang help and sometimes wage labor. Appendix II-e shows the relatively strong linkages of labor exchange among those large households (such as A-10, A-11, A-13, A-15 and A-10) and also the relative isolation from them among the other small households (such as A-5, A-17 and A-21). Further, Appendix II-f and II-g show that these small households obtain many nikang help from outside the settlements (especially Madumana where their close kinsmen reside) and also wage labor on a large scale from the neighboring settlements. Comparing with those in Nuwara Yaya, however, even those large households in Aliyawala do not develop their availability of exchange labor to the maximum because of their less intention to increase the intensity of the agricultural production so as to get more and more profit. The next section then examines some cases of the most competitive and strategic exploration for exchange labor in Nuwara Yaya.

Exploration for Exchange Labor in Nuwara Yaya

As mentioned in Chapter II, most households in Nuwara Yaya cultivate paddy land on a large scale so as to maximize the profit within a peasant mode of labor allocation. Since they are scarcely related in the genealogical sense (see Appendix I), they have a wide range of selection in fixing attam partners in the settlement, and also can ask for the equivalent cost of wage labor to those who fail to return the debt of attam labor. Consequently, they have a very low tolerance of imbalance in labor exchange and explore for exchange labor most competitively and strategically. As discussed in Chapter IV, there are strong linkages of labor exchange among large households of govigama caste, which cultivate not less than three acres of paddy land and also have not less than four household workers on average. These linkages have been developed by them to secure a large amount of labor mobilization for their cultivation since the mid 1970s. These large households normally satisfy most of their primary demand for exchange labor through these linkages, while they individually fulfill the rest of the demand through different linkages with small households. These small households, although roughly defined, mean those which cultivate less than three acres of paddy land and have less than four household workers on average. As showed in the case of Madumabanda (N-8) in Chapter IV, these small households try to satisfy their primary demand for exchange labor through organizing exchange labor with several other small households and also with one or two large households. But, in contrast to those large households, these small households do not

attract the others for labor exchange due to their small capacity of household labor so that it is very uncertain and accidental for them to secure a sufficient amount of exchange labor. As a result, they are often obliged either to reduce the operation or to recruit wage labor. In addition, there are interesting interactions between the large and the small households in the course of competitive exploration for exchange labor in Nuwara Yaya. Although attam labor exchange generally looks like a kind of egalitarian labor co-operation, the large households, which to much extent monopolize their household labor for themselves, often dominate the small households, especially in terms of the arrangement of the operations. At the same time, the small households make a counter move against such "monopoly" and "domination". I shall call it "forced labor exchange", in which small households come to help those large ones without any previous arrangement and consequently force them to join labor exchange relations with these small households. This section examines these competitive exploration for exchange labor and such interesting interactions between the large and small households in Nuwara Yaya. However, I shall examine only some cases of those of govigama caste here and shall not discuss cases of those of the other castes due to the same reason that those of beravā caste in Aliyawala were not examined in the last section.

D.M. Seneviratne (N-25) is an old and educated settler and the householder of one of the large households in Nuwara Yaya. Before shifting to this settlement, he was an employer in a wholesale establishment in Kandy. Having some cash saved in the last job and with a large number of household workers (i.e. wife, three sons and two

daughters), he began to cultivate 2.00 acres of paddy land allotted by the government in 1971 and gradually expanded the area of the cultivation through ande and ukas tenure. In 1981, he cultivated 2.00 acres of his allotted land and another 3.00 acres on ande and ukas arrangement. Table 7-3 shows Seneviratne's relatively fixed household network of labor exchange. His network contains six large households (i.e. those of A.M. Kiribanda (N-18), D.R. Gunatilake (N-21), D.K. Heenbanda (N-31), G.K. Abeyratne (N-32), P.G. Mutubanda (N-38) and A.G. Ranbanda in the neighboring settlement) and also a few small households (i.e. D.M. Weerakoon (N-15) and P.G. Somadasa in the neighboring settlement). Since these linkages, especially among the large households, are very strong and well organized on the basis of the common pragmatic purpose for securing a large amount of exchange labor, their exploration for exchange labor appears easy and certain. In many occasions, in fact, the members of these large households shift from one paddy field to another till all their operations are completed, although they maintain a very precise balance of attam labor. Such a pattern of efficient labor exchange can be seen in the case of Seneviratne's transplanting given below.

In 1981, he planned to employ transplanting method for 2.00 acres of his allotted land and broadcast sowing for another 3.00 acres. This decision is mainly due to the limitation of his household labor reciprocation capacity, although it is comparatively large in Nuwara Yaya. Seneviratne has three female workers who can join labor exchange relations with others for transplanting. In Nuwara

TABLE 7-3

D.M. SENEVIRATNE (N-25)'S HOUSEHOLD NETWORK AND ARRANGEMENT OF *ATTAM* LABOR IN TRANSPLANTING

Attam partner	Cultivation area (acreage)	Household worker (Male, Female)		*Attam* given to N-25 (man-days)	*Attam* returned from N-25 (man-days)
N-18	3.00	2	2	2	2
N-21	3.50	2	2	4	4
N-31	4.50	3	3	6	6
N-32	6.50	3	4	6	5
N-38	5.00	2	2	2	2
A.G.Rambanda	4.50	3	2	4	4
N-15	2.00	2	1	2	2
P.G.Somadasa	2.50	1	2	4	4
N-16	2.00	2	1	1 (forced *attam*)	1
N-39	2.00	1	1	2 (forced *attam*)	2
TOTAL				33	32

* D.M. Seneviratne (N-25) transplants 2.00 acres of paddy land with three male and three female workers in the household.

Yaya, transplanting must be completed roughly within 15 days due to the collective water management in Karaugahawela. Supposing that he intends to obtain the maximum amount of exchange labor by completing the operation in one day, this household labor reciprocation capacity can be estimated as follows:

The household labor reciprocation capacity
= H • (T-D)
= 3 • (15-1)
= 42 (man days)
(Here, H : 3, T : 15, D : 1).

It means that he can logically obtain attam labor as much as 42 man-days to the maximum. Since it requires about 44 man-days of female labor for the transplanting of 2.00 acre of paddy land to be completed, Seneviratne can logically transplant about 2 acres only due to the limitation of his household labor reciprocation capacity. In the actual situation, instead of completing the operation in one day Seneviratne decided to carry it out in two days. Because he knew that it was difficult for him to obtain 42 attam helpers in one day from his network of labor exchange, containing 18 female workers in all. And further, he knew that, if completing it in two days and exploring for exchange labor to the maximum, he could obtain 38 man-days of attam labor and 14 man-days of his household labor in two days, altogether 52 man-days of labor force, which was more than the required amount of labor force (i.e. 44 man-days). He then decided to carry out his plan of labor mobilization for transplanting and sent his sons to explore for exchange labor in his household network. As Seneviratne's arrangement of labor exchange is showed in Table 7-3, he could arrange 30 man-days of attam labor from all the households in his network. It could easily be done because these

households had known Seneviratne's time-table of the operation and expected his request for exchange labor. Thus, the case of Seneviratne's exploration for exchange labor shows that these strong linkages of labor exchange efficiently secure a large amount of exchange labor among these households.

However, this is not the case for those small households. For instance, A.M. Heenbanda (N-34) cultivates 2.00 acres of paddy land with his wife. His relatively fixed household network of labor exchange contains seven small households in Nuwara Yaya and the neighboring settlements. However, since his household labor capacity is very small, he can hardly develop his network with more capacity of exchange labor, so that he, if necessary, often explores for exchange labor beyond his present network. In his transplanting, after arranging 5 man-days of exchange labor from his network on a particular date, he further visited D.M. Seneviratne (N-25) and other few large households to try to satisfy some of the rest of the labor requirement. But, he found that most households which he visited, had already fixed the time-table of their work either for themselves or for their attam partners. Only D.K. Heenbanda (N-31) agreed to A.M. Heenbanda's request for labor exchange and promised to give 8 man-days of attam help, as long as he could change the date on which he had planned to transplant. Considering D.K. Heenbanda's household labor capacity, A.M. Heenbanda finally decided to change the date so as to obtain attam help from D.K. Heenbanda, and rearranged attam help which had once been fixed with some small households in his network of labor exchange. In addition to the above case of A.M.

Heenbanda, I observed several other similar cases in which small households were obliged to change their original arrangements of the operation as well as those of labor exchange so as to obtain some of a large amount of exchange labor pool, which the labor households monopolize for themselves. Thus, it can be said that under the low tolerance of imbalance especially together with the scarcity of labor, a kind of "monopoly" and "domination" around exchange labor takes place even with the rule of reciprocal labor exchange, which is normally thought of as "sociable" and "egalitarian".

However, as mentioned briefly before, these small householders are not always passive to such "monopoly" and "domination" in labor exchange. Some members, especially young ones of the small households often make a counter-move against them in such a way that they force those large household to join labor exchange relations with them by manipulating the rules and situation of labor exchange. In the early morning, without any invitation on previous arrangement, a few young men from small households come to the paddy field, where the operation of the large household is about to begin. They just tell the host cultivator of the work, "api nikam udaukoranda āwe" (we have just come to help you), or often say nothing with a smile. Then, the host cultivator and other workers realize the situation and, although reluctantly, say, "ha hondai" (yes, it's good). This is the sign of his agreement to return the debt of labor although it is given by force. In Sinhalese peasant culture, voluntary donation of labor such as nikang help is highly valued. Although this "forced attam labor" premises the equivalent return of labor, it appears a kind of the donation of labor at the moment

where one side gives labor to the other. It is therefore culturally embarrassing for anyone, especially for maha minissu (matured persons such as householders) to reject such an offer of labor in front of many other villagers. Furthermore, since these large households have a large household labor capacity as well as a large demand for labor, they can adjust this excess labor to their labor arrangement without much difficulty as long as it is relatively small. Thus, these young people from the small households succeed in fixing extra attam labor from those large households. As showed in Table 7-3, D.M. Seneviratne (N-25) was forced to have labor exchange relations with two small households for 3 man-days of attam labor in his transplanting. In addition, I observed another sixty-one occasions of such forced labor exchange, which include 83 man-days of attam labor, during the cultivation season in Nuwara Yaya. The large households often try to avoid these unnecessary contracts of exchange labor by secretly carrying out the operation with a limited number of people only to whom the host cultivator tells the time and day of the operation and asks to come, or by starting the operation such as reaping at night under the moon light. However, these tactics do not always work since those from small households can easily find at least one or two paddy fields at work and try to help the workers without any invitation during times of peak demand for labor. Those large households thus cannot help it.

This section examined very competitive and tactful exploration for exchange labor among those of govigama caste in Nuwara Yaya. On the one hand, maintaining strong linkages of labor exchange,

large households almost monopolize their household labor for themselves and sometimes dominate small households in labor exchange. On the other hand, small households are obliged to have linkages of labor exchange with a relatively small capacity among the other small households and occasionally try to have "forced labor exchange" with large households. Appendix II-h shows the very strong linkages of labor exchange among those large households (such as N-18, N-21, N-25, N-31, N-32, N-38). In 1981 these six households gave to one another among themselves attam labor as much as 512 man-days (85 man-days/household on average) during the season and this is a considerably large flow of exchange labor in comparison with that among such large households (such as A-10, A-11, A-13, A-15, A-16 and A-17) in Aliyawala. In fact, the total flow of attam labor among them in Aliyawala during the season is altogether 108 man-days (18 man-days/ household on average), which is about one-fifth of that in Nuwala Yaya. Because of such efficient linkages of labor exchange among those large households in Nuwara yaya they could carry out the cultivation on a large scale (see Table 7-3) almost without recruiting nikang help or wage labor, as showed in Appendix II-i and II-j. It can be said by these fact that the successful exploration for exchange labor together with the high economic motivation for profit can develop and maintain the high intensity of the agricultural production within the peasant mode of labor allocation. Small households are obliged to have the relatively weak linkages of labor exchange with several small and one or two large households, so that they often rely on nikang help and wage labor and also "forced attam labor". Appendix II-h, II-i and II-j show the relative isolation

of small households from those strong linkages and also indicate their high dependency of nikang and wage labor in labor mobilization in comparison to that among the large households.

Summary and Discussion

Employing the actor-oriented approach, the last three sections examined a wide variety of exploration for exchange labor in terms of its organization and intensity in the three agrarian settlements. With a brief summary of the several cases presented here, I shall discuss the two key questions of labor exchange.

The last three sections presented several different cases of exploration for exchange labor in the four agricultural processes of three agrarian settlements. I shall here classify them into two types: exploration for exchange labor under a high tolerance of imbalance in labor exchange; and exploration for exchange labor under a low tolerance of imbalance in labor exchange. This classification is significant because the degree of tolerance of imbalance in labor exchange largely affects the cultivator's strategy in exploration for exchange labor so as to increase his availability of exchange labor to the maximum. In case of these four agricultural processes in the three agrarian settlements, while exploration for exchange labor in the paddy cultivation of Madumana falls in the first type, those in the other three cultivation processes fall in the second type. In the first type, as shown by the cases in the paddy cultivation of Madumana, exchange labor is initially sought by those large households from the small households that have a relatively large excess labor in the households. In such a circumstance as a high tolerance of

imbalance, the large households consciously try to have labor exchange relations with such small households so as to obtain a relatively large amount of exchange labor, which often appears imbalanced in the form of attam (II) and also more than the large households' labor reciprocation capacity in quantity. Consequently, the small households are obliged to accept their request for exchange labor in such a circumstance. As a result, relatively large flows of exchange labor appear between the large and the small households rather than between those of similar capacity of household labor. On the contrary, the second type of exploration for exchange labor is proceeded in more or less competitive and selfish manner, as shown in the cases of the three agricultural processes in the three agrarian settlements. On the one hand, the large households, although not very clear in the chena cultivation of Madumana due to the difficulty in exploration for exchange labor, try to have labor exchange relations with the other large households so as to monopolize a large amount of exchange labor for themselves. On the other hand, those small households are obliged to have them with the other small households on a small scale and sometimes "forced labor exchange" with the large households. But, due to the less capacity of their network of labor exchange, they often have to recruit nikang help and wage labor to satisfy the rest of the demand for labor. From the above brief summary, it can thus be said that, although accidental within the relatively fixed household network of labor exchange, the organization of labor exchange is largely determined both by the relative degree of tolerance of imbalance in labor exchange and by the household labor capacity for the cultivation area.

On the basis of the above summary on the organization of exploration for exchange labor, we can now discuss the two key questions of labor exchange, raised in Chapter I. For this purpose, I shall first examine one of the two questions, that is, how demand and supply of exchange labor are mediated or interacted at the individual level without the function of market mechanism. Second, I shall go on to discuss the other question, that is, how the flow of exchange labor is determined in the locality. Regarding the mediation between demand and supply of exchange labor, as schematically showed in the decision making process of labor exchange and complementary labor mobilization in Chapter IV, demand and supply of exchange labor are mediated in such a way that the primary demand, which emerges from various factors in a given cultivation process, pulls up the supply through exploration for exchange labor to satisfy itself and, if not, the primary demand is cut back to the maximum supply (i.e. the maximum availability of exchange labor). In the actual setting, as discussed in the above summary of the concrete cases, such a mediation at the individual level widely differs according to the relative degree of tolerance of imbalance in labor exchange and also to the individual household labor capacity for the cultivation area. In the first type of exploration for exchange labor with a high tolerance of imbalance, the primary demand for exchange labor of large households such as H.M. Tilakaratne (M-8) pull up the supply of exchange labor through organizing exchange labor with those small households and it is often satisfied with the supply that is more than their households' labor reciprocation capacity. For small

households, on the other hand, although their primary demand for exchange labor can be met with the supply, mainly from their household labor itself, they are normatively obliged to have rather unnecessary relations of labor exchange with those large households so that they tend to receive practically unnecessary supply of exchange labor in return, which sometimes they do not utilize. In short, the mediation between demand and supply here is largely proceeded by moral enforcement of mutual aid. On the contrary, in the second type of exploration for exchange labor, the mediation between demand and supply of exchange labor is not normatively proceeded but takes place competitively and strategically. On the one hand, the primary demand of large households such as I.G. Heenbanda (A-10) and D.M. Seneviratne (N-25) pulls up the supply through monopolizing their large labor pool for themselves to easily be met with the supply as much as their household labor reciprocation capacity, although some unnecessary supply is occasionally given through "forced labor exchange" from small households. On the other hand, the primary demand of small households such as H.M. Sumanapala (A-12) and A.M. Heenbanda (N-34) pulls up the supply through having labor exchange relations with small households only to be met with it to some extent, although some supply is obtained through "forced labor exchange" with those large households. As a result, the primary demand of small households tend to be cut back to meet their actual supply of exchange labor. In short, the mediation between demand and supply here is proceeded by competitive and strategic exploration for exchange labor.

We have thus identified four kinds of the mediational pattern

between demand and supply of exchange labor (i.e. the four kinds of mediation in the two different types of households in the context of two relatively different degrees of tolerance of imbalance in labor exchange). However, it is considerably difficult for us to precisely predict to what extent the primary demand for exchange labor is satisfied with the supply in the actual setting of the peasant agricultural settlements. This is largely due to the difficulty in predicting not the demand but the supply as the actual result of exploration for exchange labor in a given context. Although, as shown in Chapter IV and V, the primary demand for exchange labor can be predicted in a given cultivation process and a given household characteristics, the availability of exchange labor appears very accidental and unpredictable unless the household network of labor exchange is not just relatively fixed but strictly organized. But, actual peasant society, at least, this Sinhalese peasant society is composed of the simple aggregation of households, each of which is a single economic unit largely independent of the others. Such characteristics of peasant and primitive society in general has been discussed by many anthropologists such as Shalins (1974) who calls it a species of anarchy and state that:

> The domestic mode (of production) anticipates no social or material relations between households except that they are alike. It offers society only a constituted disorganization, a mechanical solidarity get across the grain of a secondary decomposition. The social economy is fragmented into a thousand petty existences, each organized to proceed independently of the others and each dedicated to the homebred principle of looking out for itself. (1974 : 95).

Although Shalins (1974) discuss such a nature of the domestic mode of production in a very general way and the actual socioeconomic rela-

tions in the Sinhalese peasant society seem more complex, his view is still applicable here as far as attam labor exchange is concerned. As discussed earlier, in the context of the three Sinhalese settlements, except certain cases in the paddy cultivation of Madumana, exploration for exchange labor is very loosely organized in the relatively fixed household network of labor exchange so that the result of exploration for exchange labor (i.e. the actual supply of exchange labor) is very indeterminate and accidental not only for the observers but also for the peasant cultivators as seen in the case of Maddumabanda (N-8) in Chapter IV. However, as it was done earlier, it is possible for us to predict the actual mediation only by the rough and relative measurement: "large" and "small". Unless a precise measurement is required, it is therefore possible for us to expand the above discussion on the mediation between demand and supply of exchange labor at the individual level to the discussion about the flow of exchange labor in the locality as given below.

On the basis of the above discussion together with the several cases presented in the last three sections, we can immediately discuss the second question of labor exchange, that is, how the flow of exchange labor is determined in the locality, although the precise quantification is not possible here. As shown earlier, the organization of labor exchange is largely determined by the relative degree of tolerance of imbalance in labor exchange. In order to discuss the flow of exchange labor in the locality, I shall here construct two different models of flow of exchange labor among different households in the locality. One of the models will be for the locality where a high tolerance of imbalance is maintained and

the other model for the locality where a low tolerance of imbalance is maintained. For each model, I shall categorize households into four groups with relation to size of area of cultivation and household labor capacity. I shall call these four groups of households as households A, household type with large household labor and small cultivation area, households B, household type with small household labor and small cultivation area, households C, household type with small household labor and large cultivation area, and households D, household type with large household labor and large cultivation area, respectively. Then we can draw the hypothetical flow of exchange labor for each model.

Figure 7-1 shows the flow of exchange labor in the locality under a high tolerance of imbalance in labor exchange. As discussed earlier, the main organizational principle of exploration for exchange labor here is that these households with a large amount of demand for exchange labor tend to have labor exchange relation with those with a large amount of extra-household labor. Since households C and households D have a large demand for exchange labor, and also households A have a large amount of extra-household labor, large flows of exchange labor, although often imbalanced and in the form of attam (II), take place between households A on the one hand, and households C and households D on the other hand. Further, since households B also have some amount of extra-household labor, small flows of exchange labor take place between households B on the one hand, and households C and households D on the other hand. In addition, since households D have a large demand for exchange labor

and also have a relatively large household labor, a small flow of exchange labor, although often balanced, takes place among households D themselves. But, the flow of exchange labor is dormant between the other combinations of different or same group of the households.

On the contrary, Figure 7-2 shows a different pattern of flow of exchange labor in the locality, caused by a different organizational principle in exploration for exchange labor. This is seen under a low tolerance of imbalance. The main organizational principle here is that those households with a large household labor as well as a large demand for exchange labor tend to have labor exchange relations with themselves so as to monopolize a large pool of exchange labor for themselves, and those households with a small household labor and a small demand for exchange labor are obliged to have labor exchange relations with themselves. A large flow of exchange labor thus takes place among households D in category, and a small flow of exchange labor takes place among households B in category. In addition, small flows of exchange labor take place between households D and households B in order to meet the rest of the demand for exchange labor. Further, since households A have a large amount of household labor and a small demand for exchange labor, a small flow of exchange labor takes place among themselves only during the times of peak labor demand. However, since households C have only a small household labor but a large demand for exchange labor, the other groups of households do not want to have labor exchange relations with them. As a result, the flow of ex-

FIGURE 7-1

THE MODEL OF FLOW OF EXCHANGE LABOR IN THE LOCALITY UNDER A HIGH TOLERANCE OF IMBALANCE IN LABOR EXCHANGE

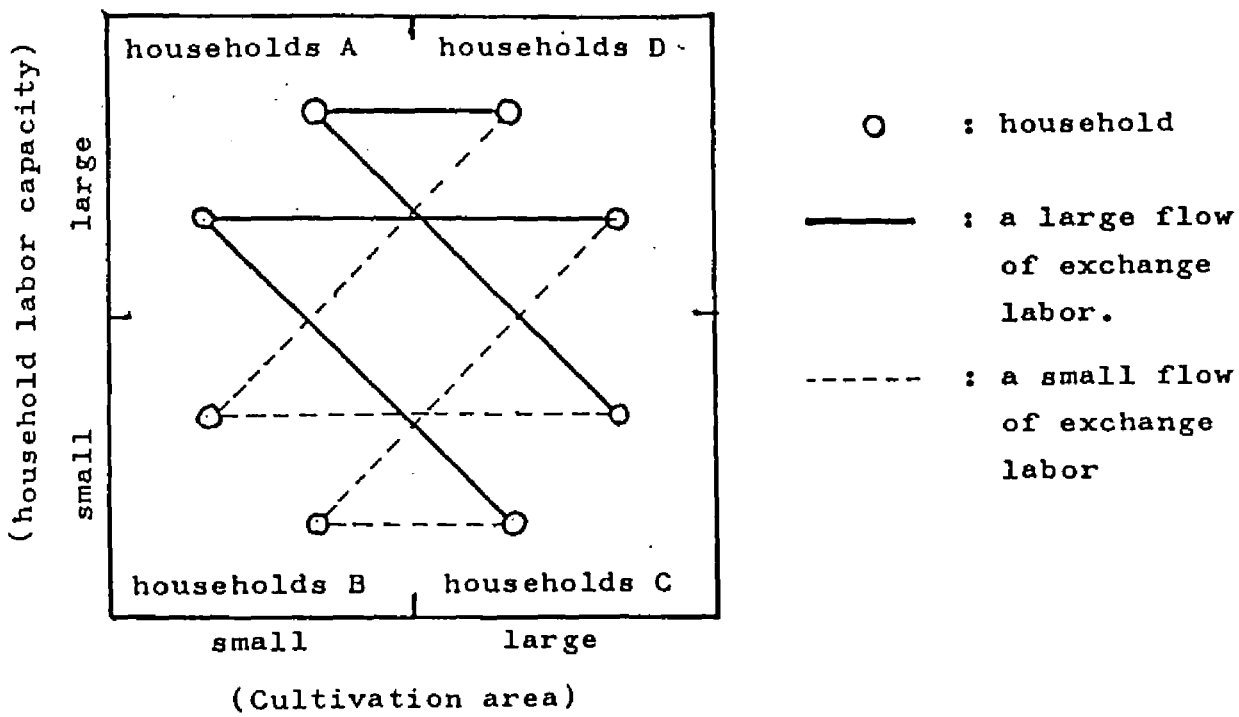
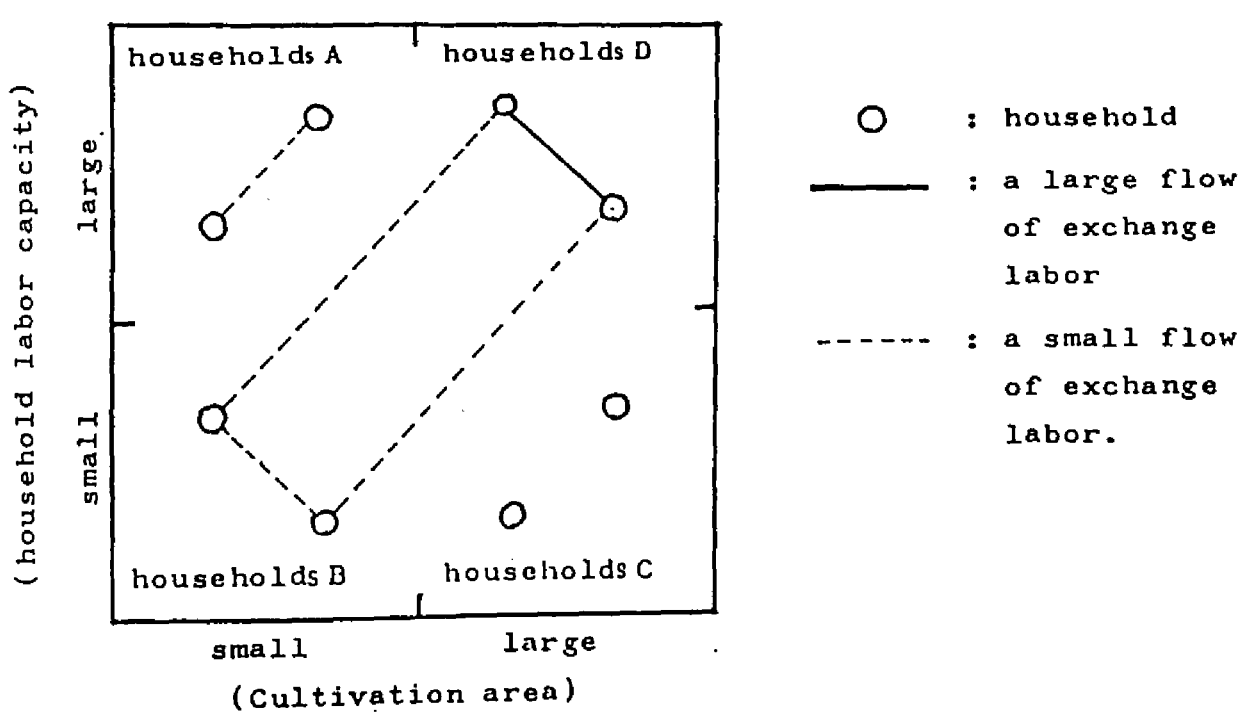


FIGURE 7-2

THE MODEL OF FLOW OF EXCHANGE LABOR IN THE LOCALITY UNDER A LOW TOLERANCE OF IMBALANCE IN LABOR EXCHANGE



change labor is dormant between households C and the other households. Further, the flow of exchange labor is dormant between the other combinations of these groups of households.

Thus, through examination of several actual cases of exploration for exchange labor in the three agrarian settlements, this section provided two models of flow of exchange labor. Although the precise qualitative assessment is not possible due to the "anarchy of peasant society", these two models clearly show how the flow of exchange labor is determined in the locality.

CHAPTER VIII

CONCLUSION

In peasant society, labor exchange is exclusively organized by individual household, but neither by preestablished enduring social organization nor by any function of market mechanism. However, serious study on such an exchange has scarcely been attempted due to lack of concepts and models to understand such a reciprocal economic exchange of the same kind. In this sense, the empirical analysis of labor exchange then provides an opportunity for us to examine the concepts and models of labor exchange in particular as well as those of reciprocal economic exchange of the same kind in general. With this perspective, I have so far examined the decision making process regarding labor exchange and complementary labor mobilization in various contexts and discussed the two key questions of labor exchange. In this Chapter, I shall first summarize the discussion presented in the previous Chapters in brief and go on to argue some significant ethnographic findings here. Referring to the theoretical discussion, especially the two key questions in the previous Chapters, I shall finally examine a theory of balanced reciprocity and present a model of reciprocal economic exchange of the same kind.

For urban dwellers in Sri Lanka as well as elsewhere, recip-

rocal labor exchange seems to imply a form of "traditional egalitarianism" in rural society. When we see labor exchange superficially, we certainly feel an warmhearted egalitarianism, which can often be found in exchange of wine or whisky at a pub. In fact, when labor is exchanged, peasants act and even consider themselves as kind-hearted helpers embroidered with various cultural meanings. However, this is, though popular, a misconception, as Gunasinghe (1976: 6) pointed out the base of attam as egoism. Once we look at labor exchange in terms of cultivators' motivation to strategically secure demand for labor mobilization, we do not see such a preestablished harmony but rather a process of peasant anarchy.

There is a distinct motivation of peasants to enjoy benefits from labor exchange to reduce the drudgery, the main cost of peasant agriculture. Focusing on the decision making process regarding labor exchange and complementary labor mobilization (which determines the culturally indeterminate part of exchange labor in a given context), we discussed how household conceives the primary demand for exchange labor and also how it succeeds or fails in securing the optimum supply through competitive exploration for exchange labor in the locality; and we then saw why the peasants prefer exchange labor to wage labor and also what kinds of aspects or benefits they enjoy from labor exchange in each stage of the cultivation (Chapter IV, Chapter V, Chapter VII). In Madumana, which has not come yet under the post-war government program for rural development, those subsistence farmers organize labor exchange to reduce the drudgery, their major cost of agricultural production (Chapter II, Chapter VII). In Aliyawala and Nuwara Yaya, which have come under the government

major irrigation scheme and also incorporated with a larger capitalist economy, those paddy cultivators as petty-commodity producers organize labor exchange on a large scale in order to reduce the drudgery and the expense of wage labor and also exploit, to the maximum, their household labor, which has no opportunity to be employed elsewhere (Chapter II, Chapter VII).

In these agrarian settlements, although their actual strategy differs, the organizational principle is oriented toward securing beneficial and reliable households and avoid unbeneficial and unreliable ones to tactically organize labor exchange (Chapter IV, Chapter VII). In other words, within a single cultural and normative setting, "competition", "monopoly" and "domination" take place around reciprocal labor co-operation (Chapter VII). Of course, they do not always act for their interests or benefits. Like attam (II), they sometimes help the others altruistically. But, this is dependent upon the context. For instance, like in paddy and chena cultivation of Madumana, while cultivators generously help the others in some context, they become selfish and unaltruistic in the other context of labor assistance. They are thus "realistically ethical" peasants at least in labor co-operation (Chapter III, Chapter IV, Chapter VI).

As mentioned in Chapter VI, there have been a debate over peasant behavior in Asia, whether "moral" or "rational" (for instance, Scott 1976; Popkin 1979; Keyes 1983). However, they have not provided much empirical (or ethnographic) materials so that this debate is ideal typical but not empirical. Then, together with ethnographic findings, the qualitative model of the decision making process regard-

ing the generosity and tolerance of imbalance in labor co-operation (Chapter VI) empirically provides an significant alternative view of "realistically ethical" peasants.

These peasants thus consciously make a decision to practice labor exchange under a given ecological, agricultural, and socioeconomic conditions. Although labor exchange is rooted in history and a custom as a pre-capitalist mode of labor organization, it cannot be regarded merely as a cultural lag or hangover from a pre-capitalist economy. This is because labor exchange takes place as long as the main cost of agricultural production is the drudgery of his or her labor, whether in a pre-capitalist economy or in a peripheral capitalist economy (like the one in Laggala). Labor exchange is, therefore, rather an adaptive response made by peasant households to their current ecological, economic and social conditions. This further suggest that labor exchange will prevail not only in remote, traditional villages but in new colony settlements where wage labor is available. I believe that this view provides a more realistic notion of labor exchange than the simple and popular idea that labor exchange is replaced by wage labor along with intrusion of cash economy to peasant society (for instance, Erasmus 1956; Moore 1975; Karunanayake 1980).

Apart from the ethnographic findings discussed above, I shall now locate my model and related notions (especially the two key questions) of reciprocal labor exchange in a wider theoretical context to clarify an unstudied area of "balanced reciprocity". To do this, I shall first identify what has not been studied in the theory

of "balanced reciprocity", and present a general model of reciprocal economic exchange of the same kind.

It was Sahlins (1974) who introduced the tripartite division of exchange phenomena: generalized, balanced and negative reciprocity. Here, balanced reciprocity is characterized by precise balance as follows:

> the reciprocation is the customary equivalent of the thing received and is without delay . . . Balanced reciprocity may be more applied to transactions which stipulate returns of commensurate worth or utility within a finite and narrow period. (1974 : 145)

However, the concept of balanced reciprocity seems to cover within itself the three different types of exchange phenomena, that is, market exchange, reciprocal economic exchange of the different kind (e.g. various kinds of barter exchange, share-cropping tenancy and so on) and reciprocal economic exchange of the same kind. Out of them, market exchange has of course well been studied in mainstream economics, while reciprocal economic exchange of the different kind also has been discussed by several anthropologists such as Humphrey (1984) and Orlove (1986). On the contrary, reciprocal economic exchange of the same kind has scarcely been discussed in economic anthropology. Although there are, as mentioned in Chapter I, many ethnographic accounts on reciprocal exchange of labor, tool and service in many parts of the agrarian world, few theoretical discussions beyond Sahlins'(1974) general notion of balanced reciprocity can be found among them. However, reciprocal economic exchange of the same kind has certain distinct characteristics which distinguish it from market exchange and reciprocal economic exchange of the differ-

ent kind. In these two forms of exchange behavior, while the choice at individual level depends upon both exchange partners' evaluation about whether the difference in value between item given and item received is positive or not, their evaluation of value gained in a given exchange is affected by price or varying rate of exchange, which is derived from the mediation between demand and supply of item exchanged in market, whether it is modern capitalistic or tribal-peasant. In contrast, as discussed in the context of labor exchange in Chapter I, the choice in reciprocal economic exchange of the same kind neither depends upon such a difference in value between item given and item received nor upon any varying rate of exchange. It is therefore necessary to find concepts and models different from those developed for the other two forms of balanced reciprocity in order to fill the blank, that is found in the theory of balanced reciprocity. Further, these concepts and models to be developed here must explain various aspects of exchange behavior beyond Sahlins' (1974) concept of balanced reciprocity, namely, they need to explain why such an exchange takes place; what is maximized or optimized in it; with whom a given actor exchanges item; how much of it is exchanged; and what are the consequences of it. In order to explore for answers of these theoretical questions, my model of reciprocal labor exchange is useful. So, in what follows, let us discuss a model of reciprocal economic exchange of the same kind to explain how it can provide the answers of the questions mentioned above.

To discuss the model and the related concepts of reciprocal

exchange of the same kind, which is initiated by the individual economic motivation but not the social one, the model must include the decision making process regarding reciprocal exchange of the same resource. Then following the natural decision making approach, we can make an elementary decision model as follows:

1st step : Narrowing down a large number of alternatives for a specific economic purpose, into a feasible subset.

2nd step : Listing aspects of a subset, selecting one aspect and ordering alternatives on it in order to conceive the primary demand for resource exchanged.

3rd step : Exploration for the supply of resource exchanged and dropping unrealistic alternatives.

4th step : The final choice of the most optimum alternative of reciprocal exchange of resource and, if necessary, the complementary search for another alternative.

The following notions must be added to the above elementary model of the decision making process to clarify it in detail:

1. Aspects or utilities of alternatives in reciprocal economic exchange of the same kind are derived from mobilization of items exchanged on the optimum scale in the optimum period through pooling them among exchange partners.

2. Under such a condition that exploration for items exchanged is spontaneously organized by individual actor, the pattern of the mediation between demand and supply of items exchanged at individual level varies according to a given degree of tolerance of imbalance in exchange.

3. Under the same condition above, flow of items exchanged takes place in two ways. First, in the locality under a high tolerance of imbalance, the flow tends to take place between exchange actor with a more amount of items exchanged and exchange actor with a less amount of them. Second, in the locality under a low tolerance of imbalance the flow tends to take place between exchange actors themselves who are with a more amount of items exchanged, and a relatively minor flow between exchange actors who are without such an amount of items exchanged.

Here, the first notion makes clear why such an exchange takes place and what is maximized in it. The second notion on the other hand clarifies the pattern of the mediation between demand and supply of items exchanged at individual level, which takes place at 3rd step in the above elementary decision model, while the third notion makes clear the pattern of flow of items exchanged in the locality as a collective result of the decision making regarding reciprocal exchange of the same items. The above elementary decision model, together with these three notions, thus provides a systematic view of reciprocal economic exchange of the same kind in general.

It must be noted here that this model remains a skeleton of my model of the decision making process regarding labor exchange and complementary labor mobilization in the peasant agriculture, unless it is located in a given context and various affecting factors are identified through the natural decision making approach together with ethnographic endeavor. The model presented here is therefore still a tentative model of reciprocal economic exchange of the same kind. But, since there are not any models and concepts that can adequately explain such exchange behavior in economic anthropology or mainstream economics, this model will at least guide research endeavor on any kind of such exchange in future.

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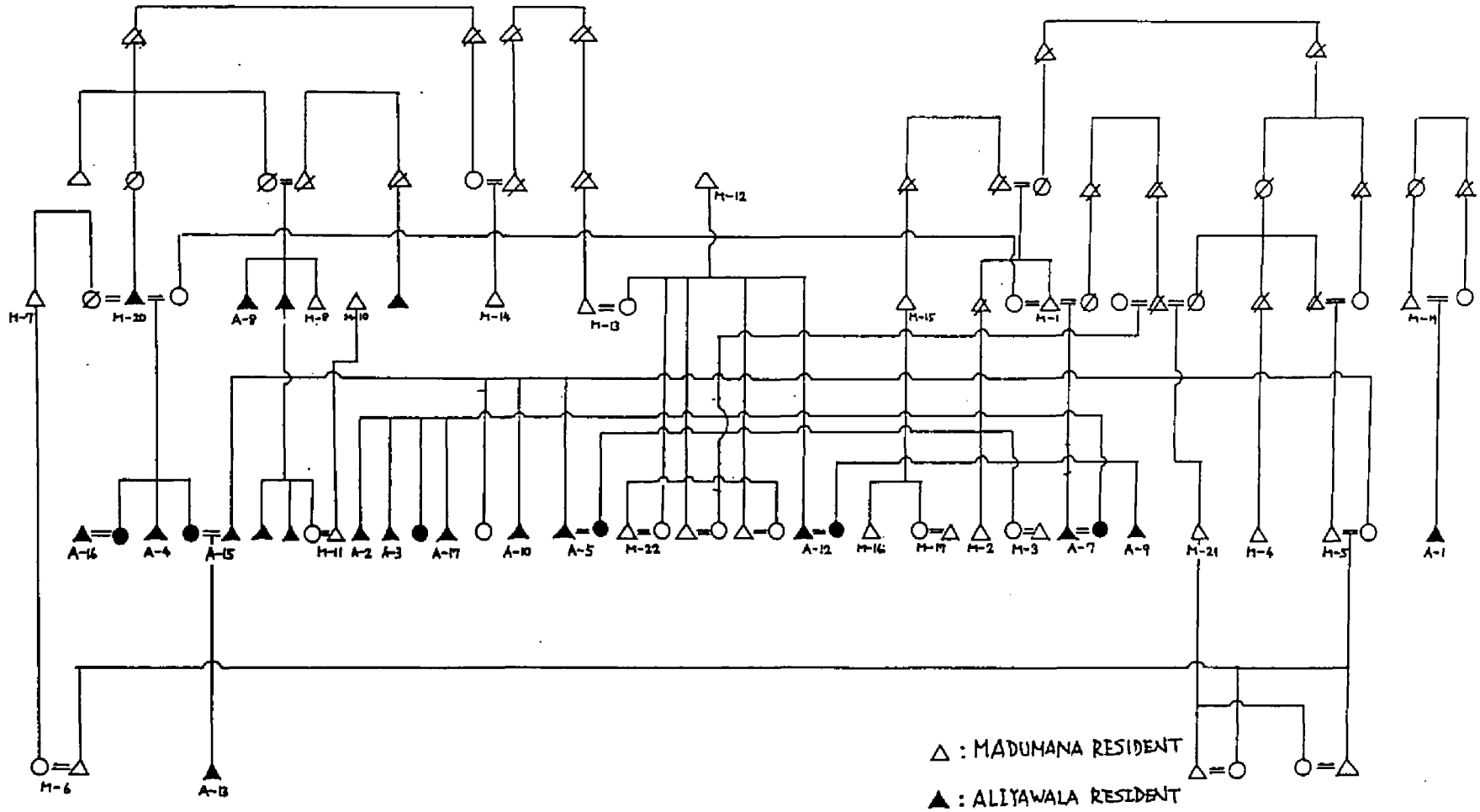
APPENDIX I

KINSHIP GENEALOGY IN THE THREE AGRARIAN SETTLEMENTS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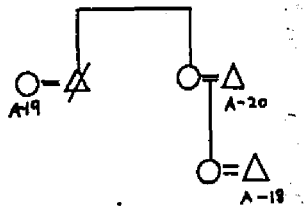
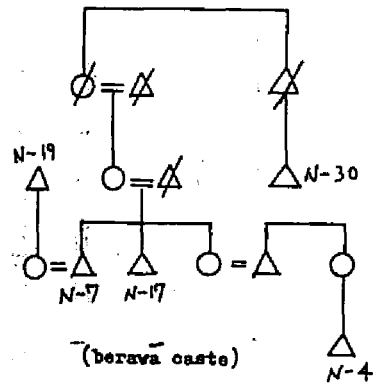
△ : MADUMANA RESIDENT
▲ : ALIYAWALA RESIDENT



(berava caste)



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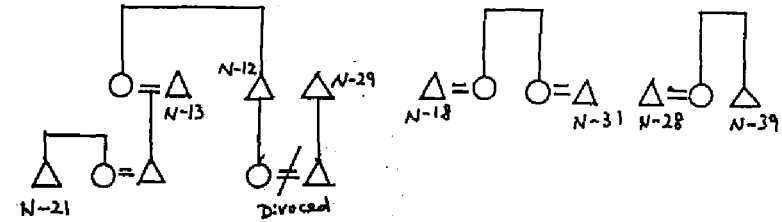


(govigama caste)

ALIYAWALA

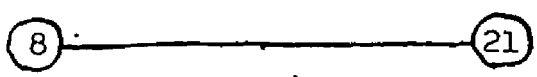
NUWARA YAYA

* The householders who do not appear here have no kinship relations in their settlement.

APPENDIX II

FLOW OF ATTAM, NIKANG AND WAGE LABOR IN THE THREE SETTLEMENTS (MAHA 1981)

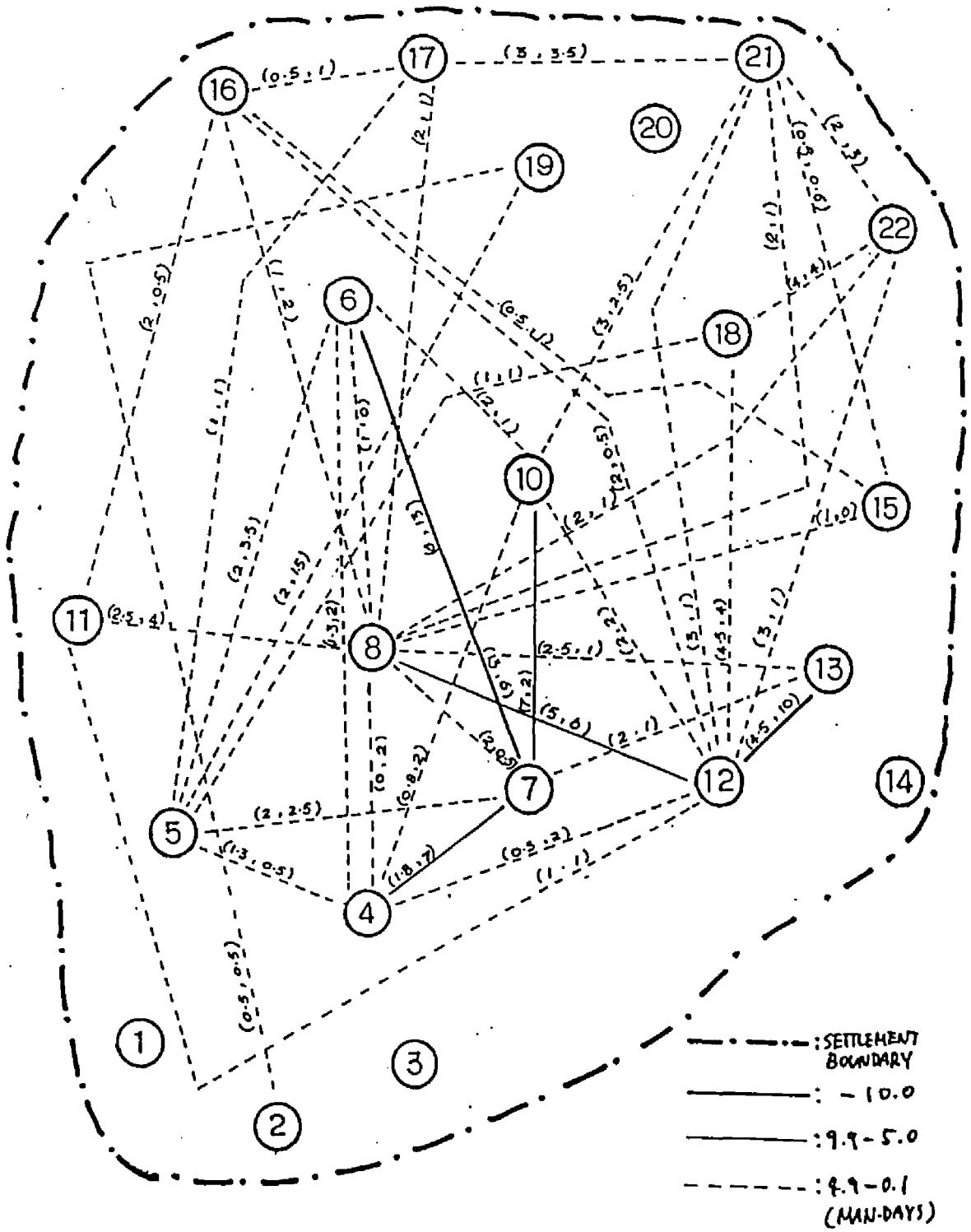
Appendix II provides the flow charts of attam, nikang and wage labor in these three settlements. The quantity of flow of the three types of labor between two households is shown by two figures within the bracket. If the household (M-8), for instance, gives labor assistance of A man-days to the household (M-21) and the household (M-8) receives B man-days of labor assistance from the household (M-21) during the cultivation season, this flow of labor is indicated in the context of Madumana as follows:



(B, A)

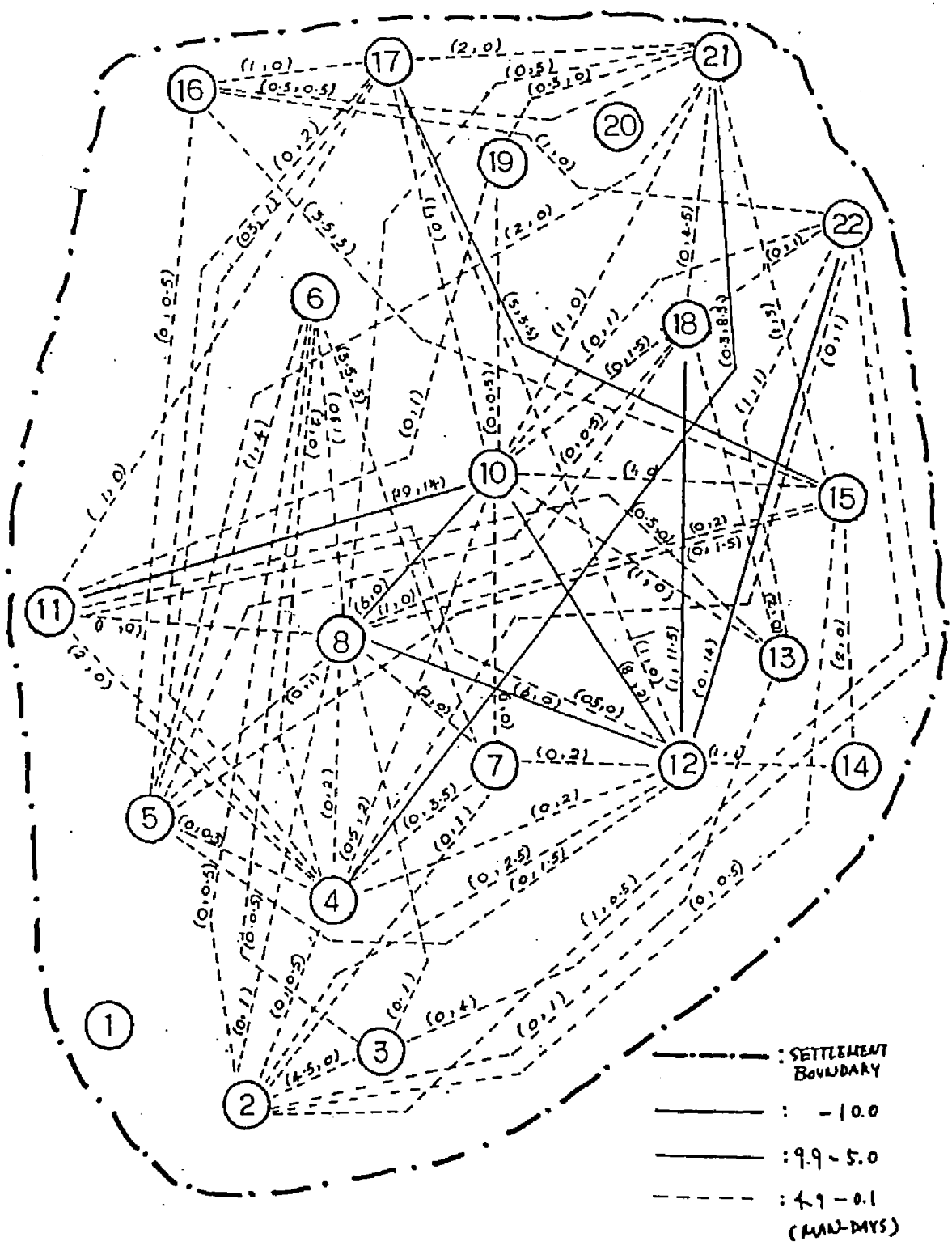
These quantitative figures shown here are restricted to those of intra-settlement transaction of labor. Further, these figures of attam exchange labor in Nuwara Yaya are not noted here due lack of space.

(a) FLOW OF ATTAM EXCHANGE LABOR IN THE PADDY CULTIVATION OF MADUMANA



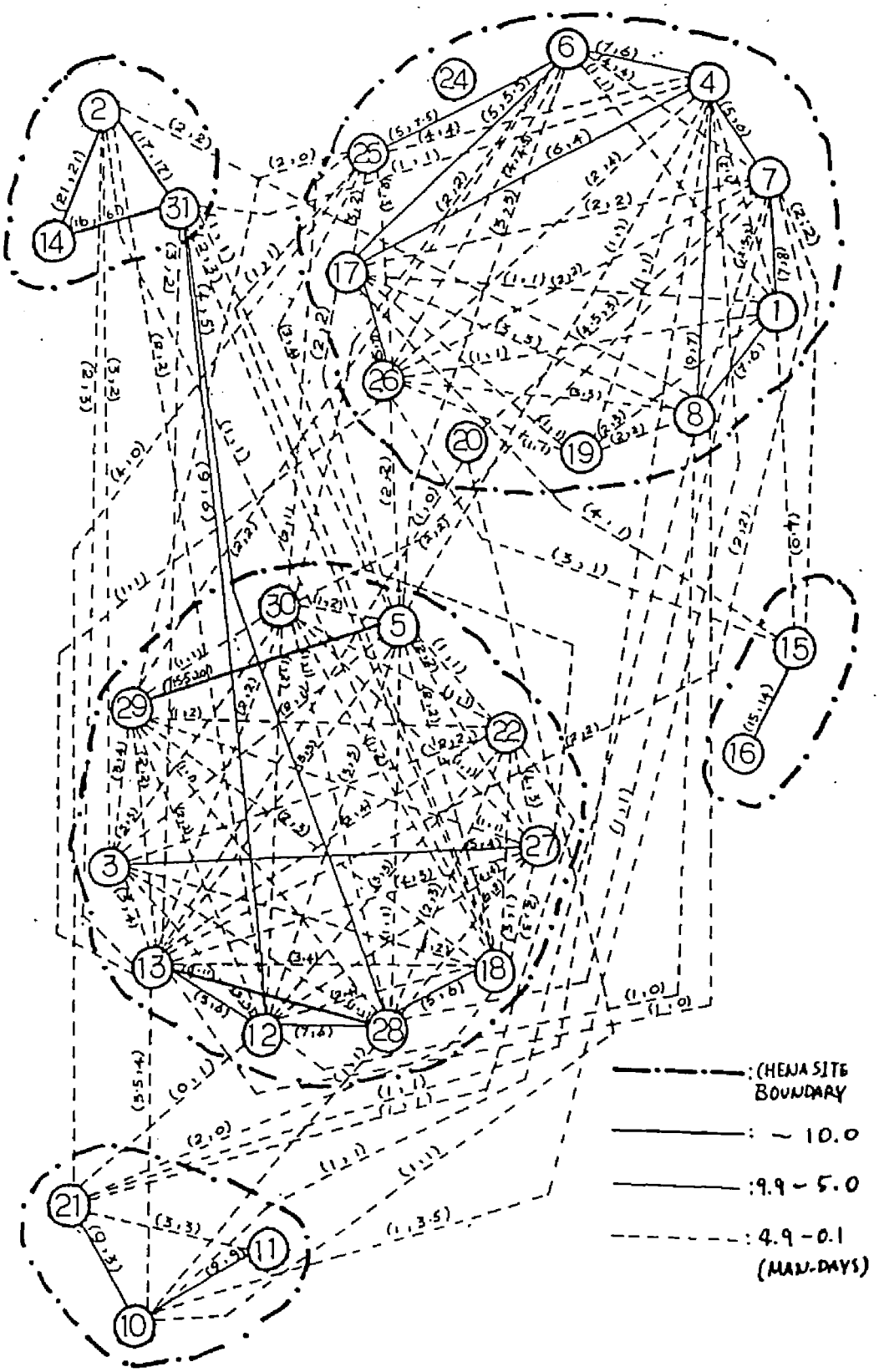
(b) FLOW OF NIKANG HELP IN THE PADDY

CULTIVATION OF MADUMANA

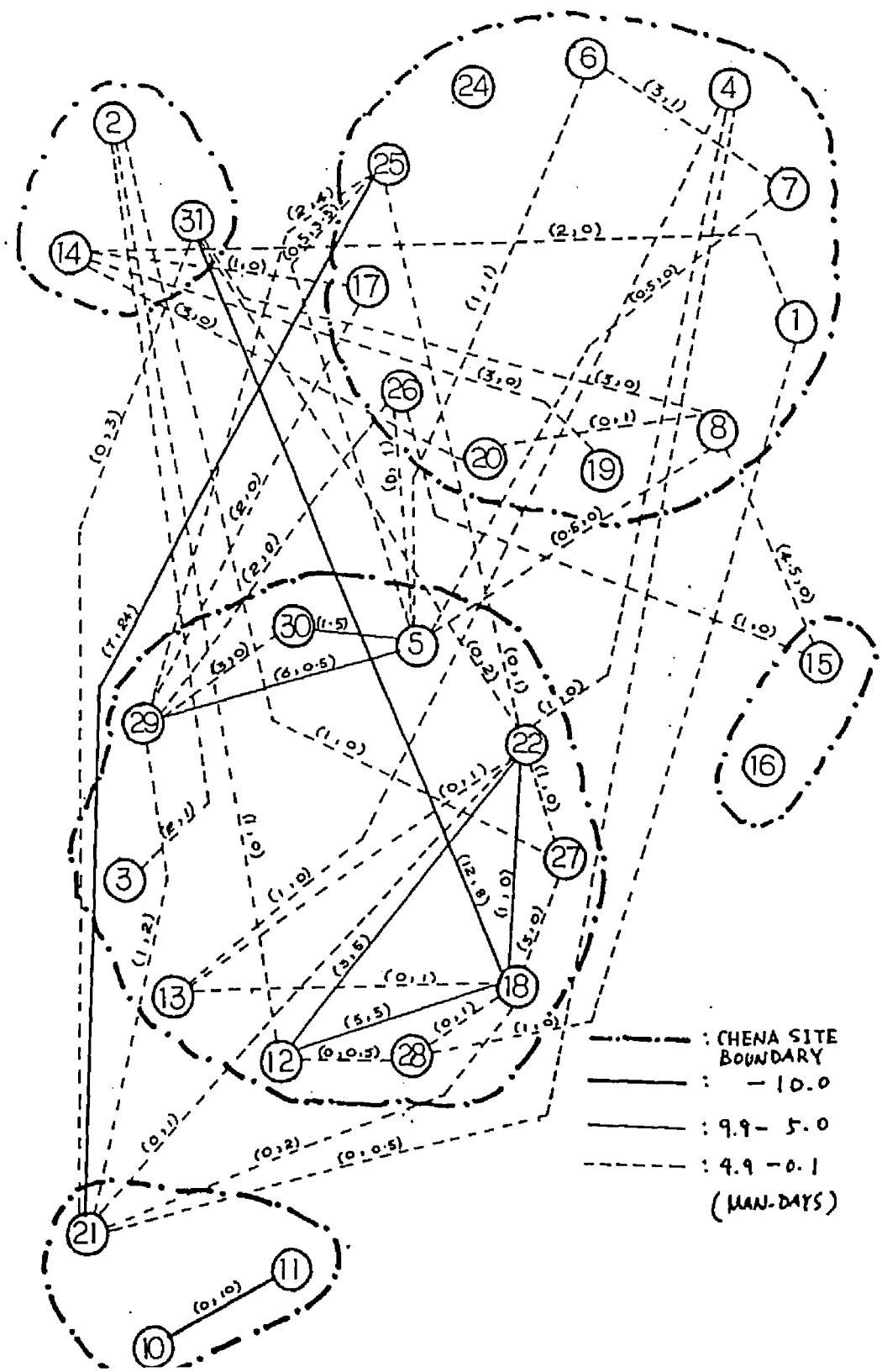


(c) FLOW OF ATTAM EXCHANGE LABOR IN THE CHENA

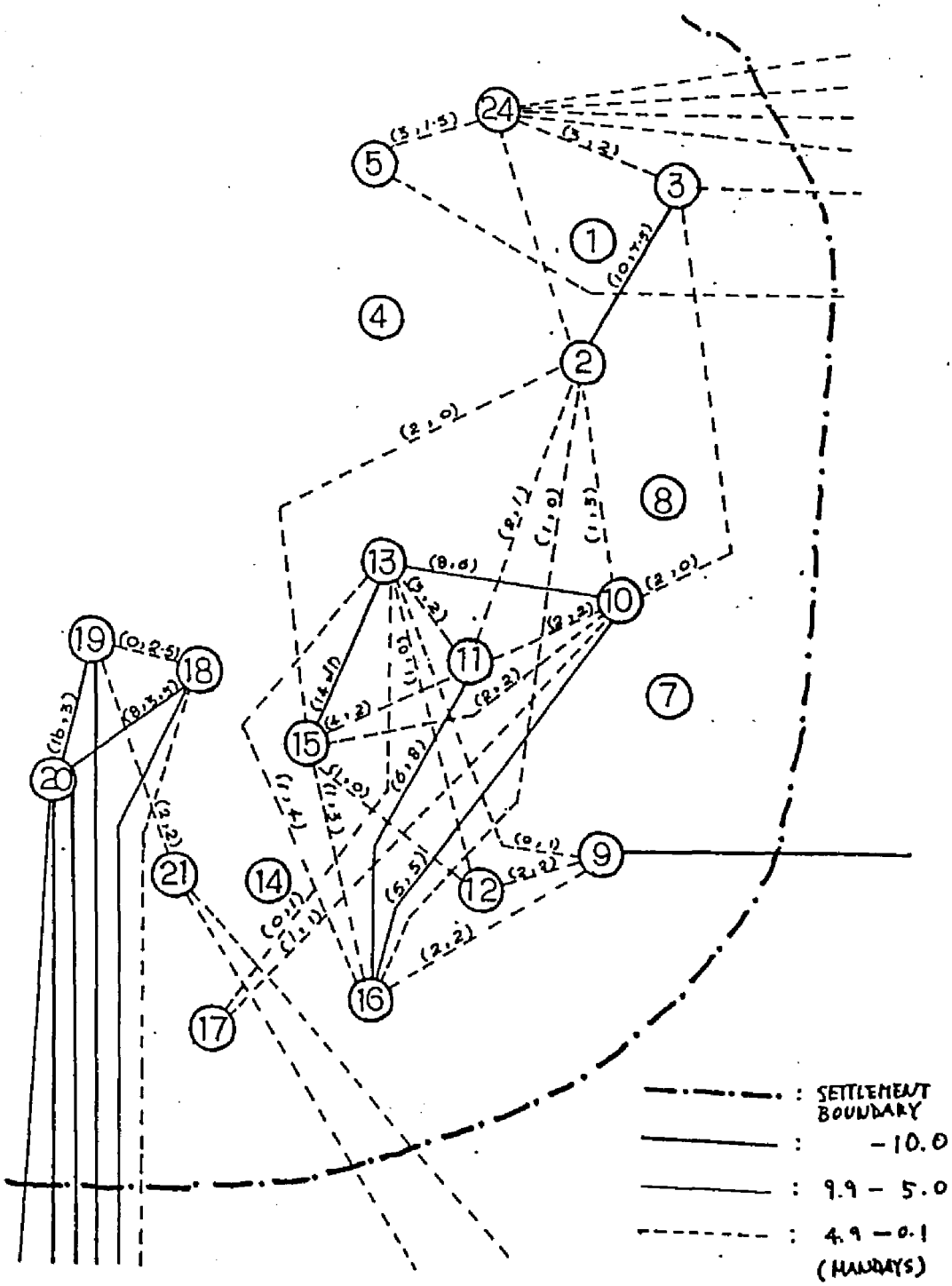
CULTIVATION OF MADUMANA



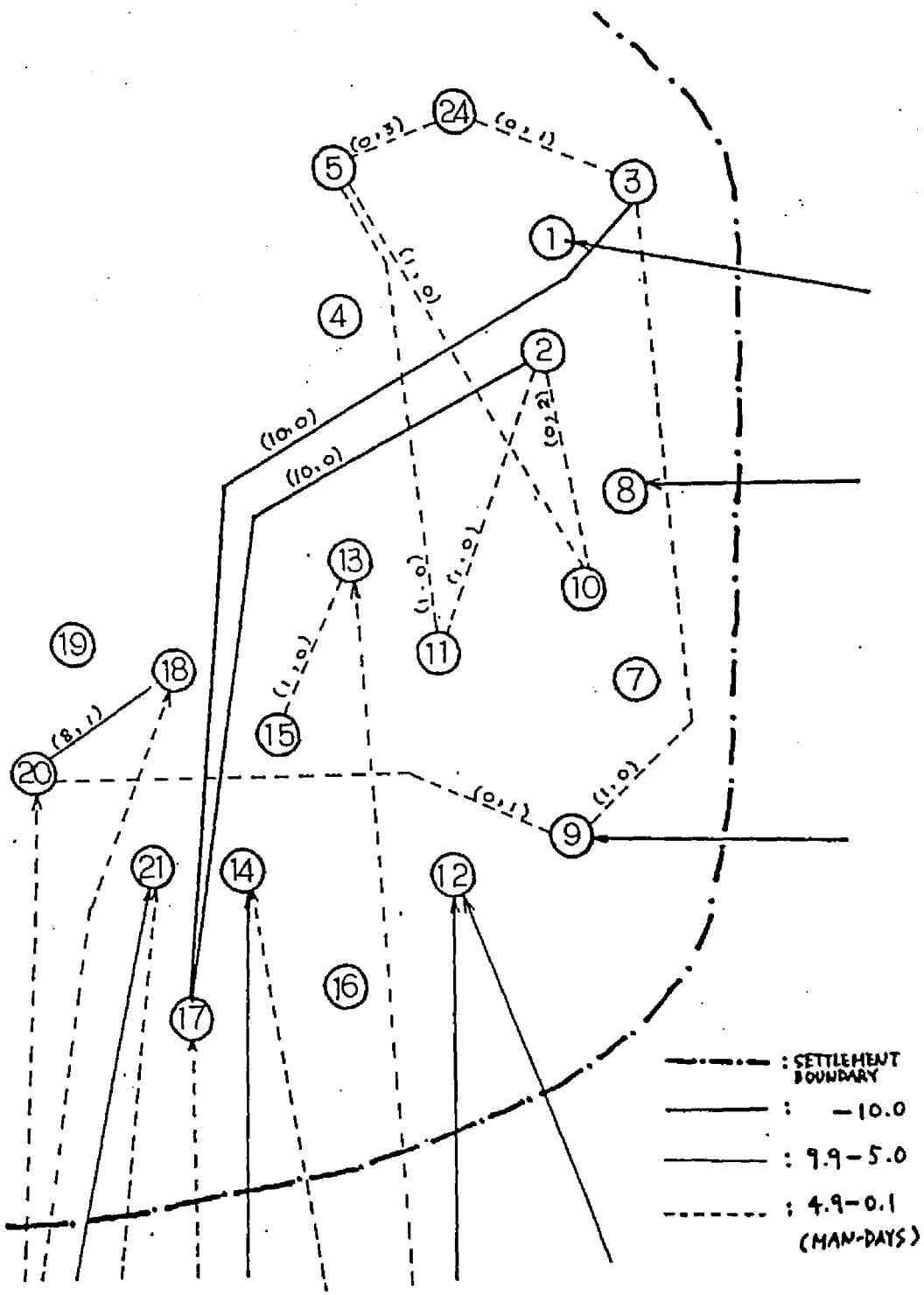
(d) FLOW OF NIKANG HELP IN THE CHENA CULTIVATION OF MADUMANA



(e) FLOW OF ATTAM EXCHANGE LABOR IN THE PADDY CULTIVATION OF ALIYAWALA

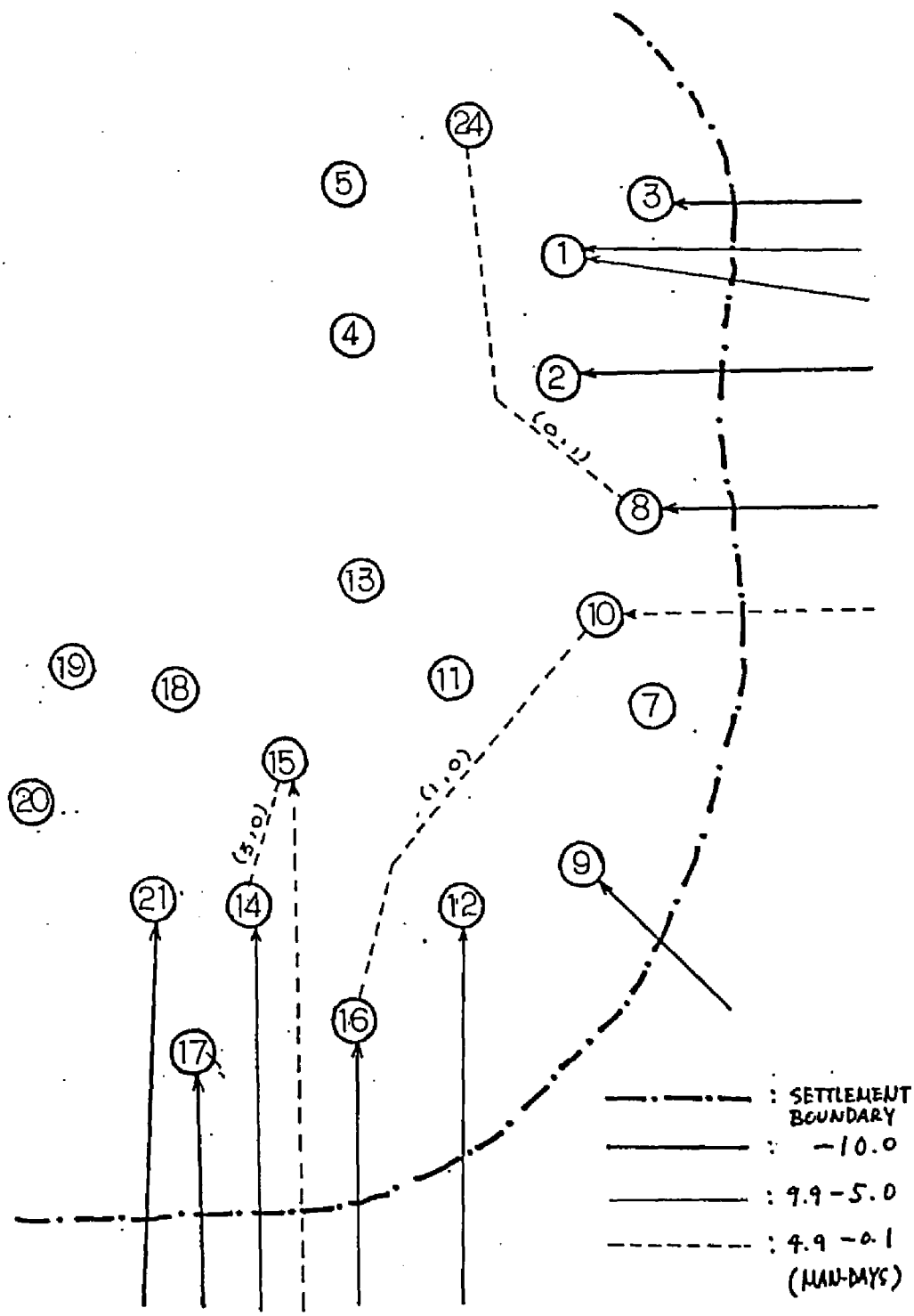


(f) FLOW OF NIKANG HELP IN THE PADDY CULTIVATION OF ALIYAWALA

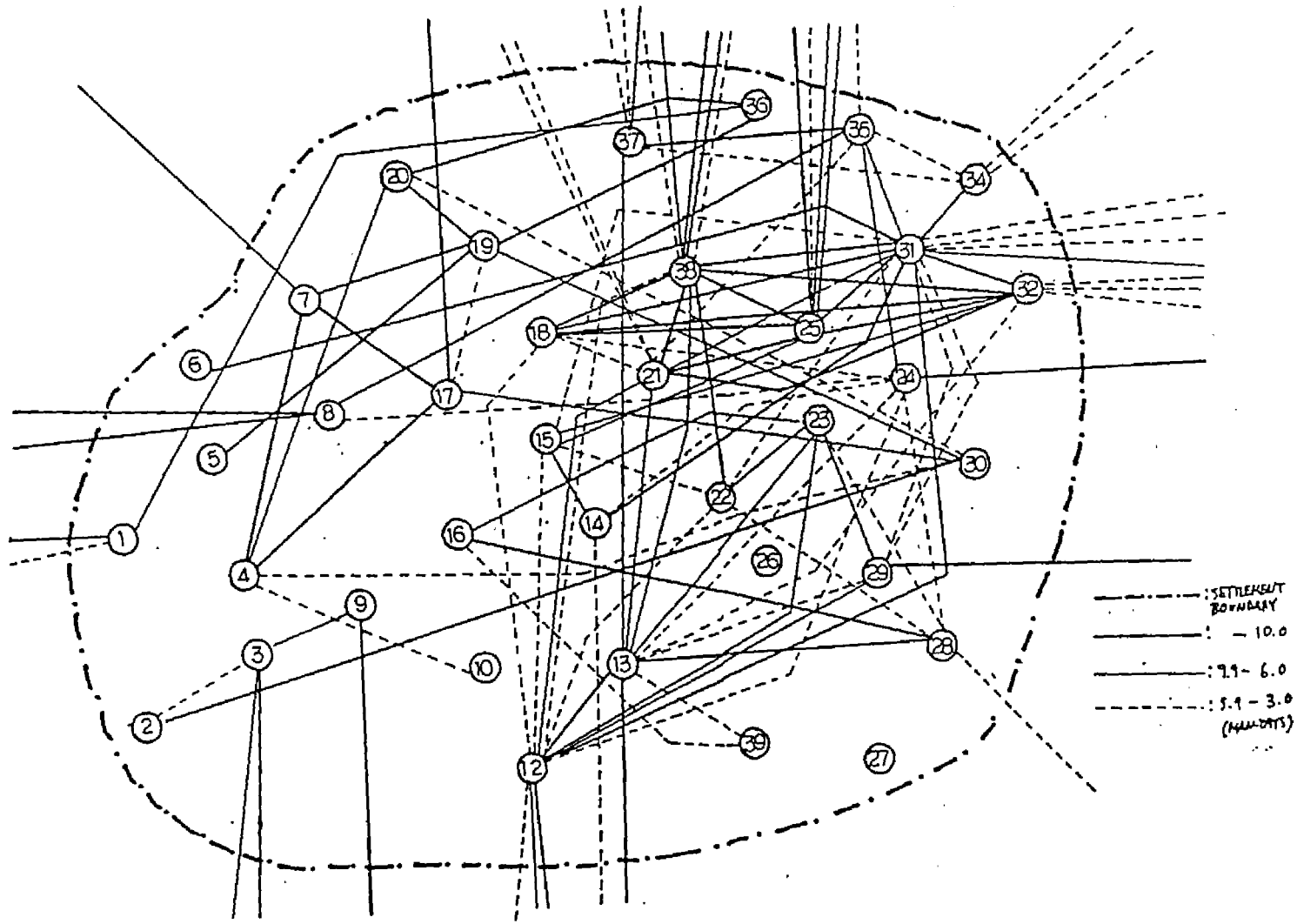


(g) FLOW OF WAGE LABOR IN THE PADDY

CULTIVATION OF ALIYAWALA

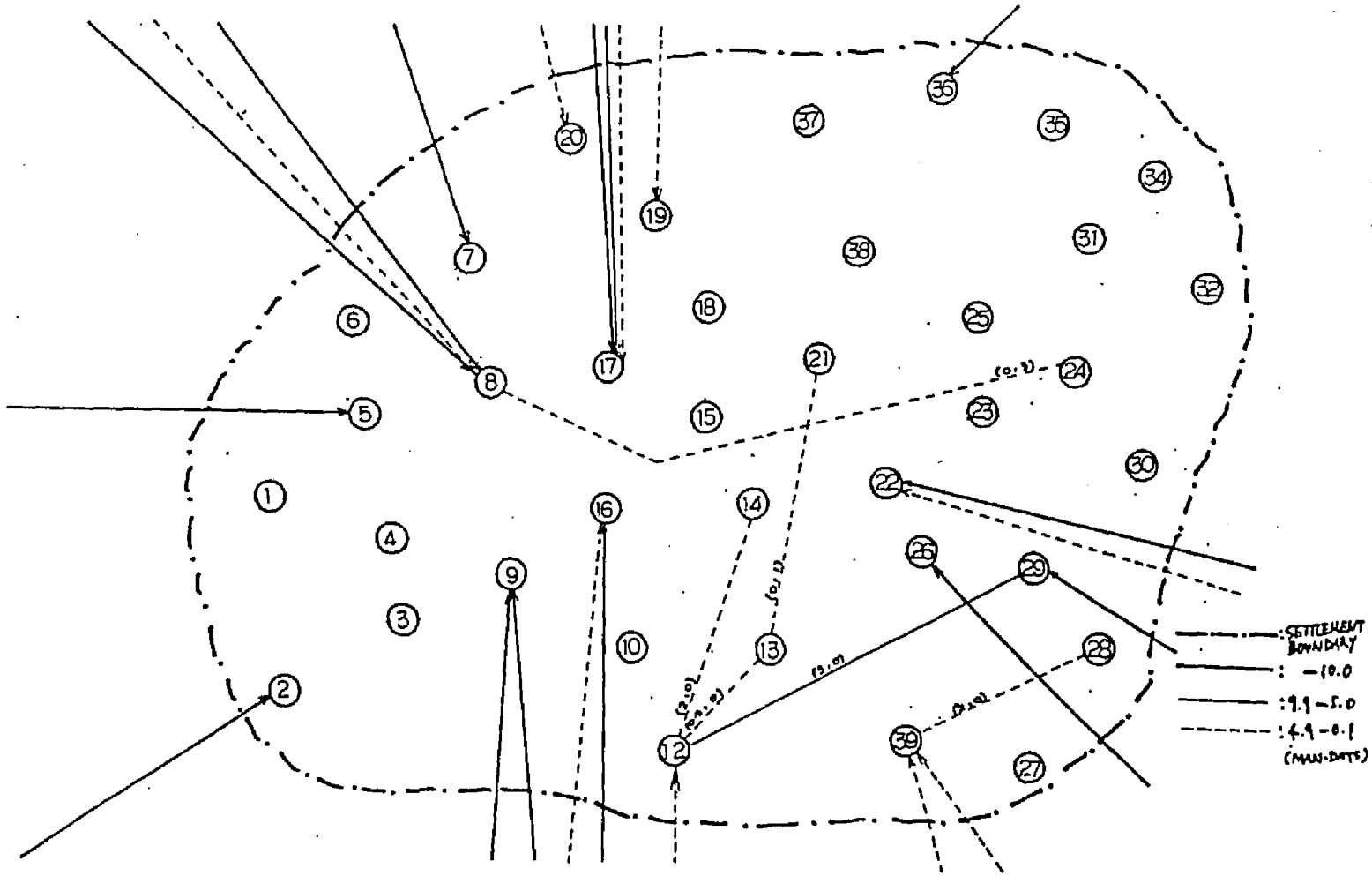


(h) FLOW OF ATTAM EXCHANGE LABOR IN THE PADDY CULTIVATION OF NUWARA YAYA



(i) FLOW OF NIKANG HELP IN THE PADDY CULTIVATION

OF NUWARA YAYA



(j) FLOW OF WAGE LABOR IN THE PADDY CULTIVATION

OF NUWARA YAYA